The Builder.

VOL. XCII.—No. 3354. MAY 18, 1907.

ILLUSTRATIONS.

Principal Entrance, Birmingham University.....Sir Aston Webb, R.A., Architect.
New Royal Infirmary, Glasgow } .....Mr. Jas. Miller, A.R.S.A., Architect.
New Medical School Building, Glasgow University }
Selected Design for Public Library, Kendal.....Mr. T. F. Pennington, A.R.I.B.A., Architect.

Illustrations in Text.

The Prehistoric Monuments of Sardinia:—
Fig. 1. Nuraghe Madrone, near Silanus (from North) ..... Page 489
Fig. 2. Nuraghe Madrone, from South ..... Page 590
Fig. 3 Doorway of Nuraghe Pontis, near Bortigali ..... Page 590
Fig. 4. Nuraghe Orolo, near Silanus ..... Page 591
Fig. 5. Sepoltura dei Giganti at Bidile Piras, near Abbasanta ..... Page 591
Fig. 6. Dolmen, near Birori ..... Page 592
Fig. 7. Menhir, near Fonni ..... Page 592

Notes at the Paris Salons:—
"L'Age Heureux": by M. Delobbe..... Page 595
New Royal Infirmary, Glasgow. Plan of First Floor..... Page 605
New Medical School, Glasgow University:—
First Floor Plan ..... Page 606
Ground Floor Plan ..... Page 607
Illustrations to Student's Column:—
Fig. 47..... Page 609
Figs. 48 and 49..... Page 610
Figs. 50 and 51..... Page 611

CONTENTS.

	PAGE
The Prehistoric Monuments of Sardinia	589
Notes	592
Notes at the Paris Salons	594
Home Arts and Industries Association	597
Magazines and Reviews	597
The Architectural Association Summer Visits	598
Architects and the Workmen's Compensation Act	598
The Surveyors' Institution	599
Fire Test of a Tubular Concrete-Steel Floor	600
Water Charges Bill	600
The Association of Municipal and County Engineers	602
Architectural Societies	604
Books Received	604
Metropolitan Asylums Board	604
Fifty Years Ago	604
Illustrations:—	
Principal Entrance, Birmingham University	604
Glasgow New Royal Infirmary	604
Glasgow University Extension	606
Public Library, Kendal	607
Care of Ancient Irish Monuments	607
The London County Council	608
Applications under the London Building Act, 1894	609
The Student's Column	609
Obituary	611
General Building News	611
Miscellaneous	612
Capital and Labour	612
Legal:—	
The Powers of the Tribunal of Appeal	612
Action by Builder	613
Speculative Building at Wimbledon	613
Case under the Bradford Improvement Act	613
Patents	614
List of Competitions, Contracts, etc.	615
Some Recent Sales	618
Meetings	619
Prices Current	619
Tenders	620

The Prehistoric Monuments of Sardinia.

THE island of Sardinia, despite its neighbourhood to Italy, is comparatively little visited even by the more leisurely of travellers. This neglect is unjustified, though easily explained by the backwardness of communications. For Sardinia, though it can present no especially remarkable monuments of the classical period (these are not entirely lacking, as we hope subsequently to show), has very important remains from prehistoric times, and a very fine series of churches dating from the period of the Pisan supremacy.

It is with the prehistoric monuments that we now propose to deal. We cannot on the present occasion attempt to discuss the subject at all exhaustively, nor shall we enter upon the examination of the objects found within and near them, but shall approach the question rather from the constructional point of view.

By far the most important and conspicuous prehistoric monuments of Sardinia are the so-called Nuraghi (the word is a corruption of "muraglie"). Figs. 1 and 2 show two different views of the Nuraghe Madrone, near Silanus. They are circular towers built of blocks of stone, laid without mortar, each about 50 centimètres (1 ft. 8 in.) in height; they are not less than 10 mètres (33 ft.) in diameter at the base, and rise to a height of 10 to 12 mètres, or even more, as far as now preserved, the diameter tapering rapidly, as the blocks, which are sometimes quite unworked, but more often roughly hewn, are laid without cement or mortar. The interstices are sometimes filled, but only in the interior, with chips of stone and clay, so as to protect the internal chambers from wind and rain. The interior is more often in two stories, sometimes only in one, rarely in three; the internal chambers and passages are roofed by the gradual inclination of the sides, the principle of the arch not being employed, and the summit of the vault being closed by a single large stone. The roughness of construction is not, however, in all cases due to their great antiquity; where slit windows are found they are carefully formed, and in the Nuraghe Losa, near Abbasanta, some well-cut blocks, which seemed to have belonged to the coping at the top of the nuraghe, and are in sharp contradistinction to the roughness of the rest, have been discovered. Indeed, to attempt a chronological classification from the different degrees of care used in working the blocks of which different nuraghi are composed, is as dangerous as to try to assign dates to the "Cyclopean" constructions of Italy on similar grounds (*Not. Scavi*, 1903, 259), and Pinza (*cit. infra*, 131) expressly rejects the attempt. Even in some of the most archaic-looking

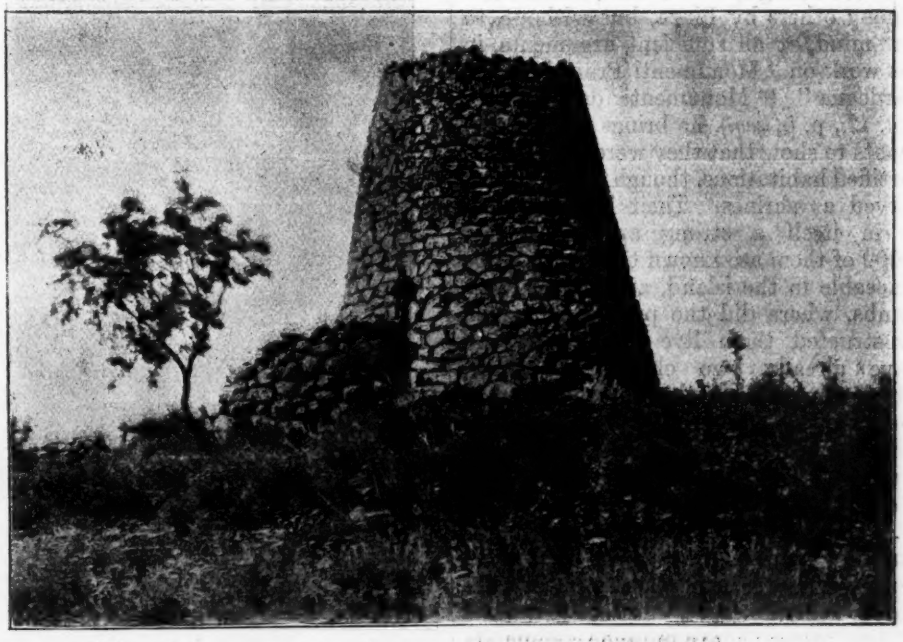


Fig. 1. *Nuraghe Madrone, near Silanus (from North).*

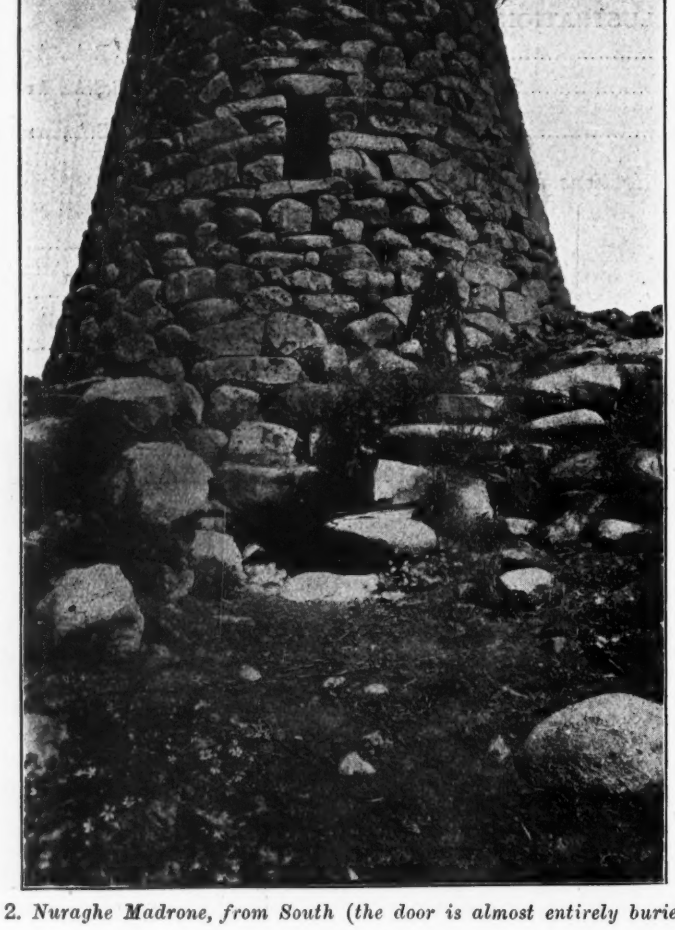


Fig. 2. Nuraghe Madrone, from South (the door is almost entirely buried).

"nuraghi" more careful work in certain necessary details makes it obvious that economy of labour, and not inability, dissuaded their constructors from attempting a higher degree of finish throughout where it was not required. Further, in the Nuraghe Lugheras, near Abbasanta, we find the additions more roughly constructed than the original nuraghe. The purpose for which they were erected has been much discussed. The best analysis of the whole question is to be found in Signor Filippo Nissardi's paper, entitled "Contributo per lo studio dei Nuraghi della Sardegna," communicated by him to the Congresso Internazionale delle Scienze Storiche of 1903, and printed in the *Atti*., vol. v. (Archeologia), pp. 651, *seq*. In contradiction of the view that the nuraghi were tombs, maintained among others by Pinza, but without, to our mind, at all sufficient arguments, in his work on "Monumenti Primitivi della Sardegna" ("Monumenti dei Lincei," vol. xi., p. 5, *seq*.), he brings many arguments to show that they were in the main fortified habitations, though some of them served as shrines. Their large number is in itself a strong argument—over 5,000 of them are known to exist or to be traceable in the island, and if they were tombs, where did the population which constructed them live? Moreover, we have already two classes of tombs, which appear from the objects found in them to be indubitably contemporary with the nuraghi; these are the so-called *sepolture dei Giganti* and *Domus de Gianas*, which will be described below.

Again, their local distribution is too carefully studied to be that of tombs; here we find them placed as watch-towers near the coast, or as protectors of landing-places; here a nuraghe commands a ford, the mouth of a valley, or a gorge, or one of the passages from one tableland ("altipiano") to another, for central Sardinia has many such. Often they are found distributed over the tableland itself, when it was the seat of a tribe, but sometimes they only guard its extremities, *e.g*., on the barren level region, which stretches south from Abbasanta, almost to Fordungianus, traversed by the main Roman road through the island. They occupy only points at the edge of it, which immediately overhangs the valley of the Tirso, and command the approaches from one to the other.

Again, they are found near lagoons, near metalliferous sites, or in the centre of fertile plains. As an example of the last, Signor Nissardi quotes the important group of the plain of Giava, between Bonorva and Torralba. They are placed if possible in the vicinity of a water supply of some kind, and some of them even guard springs of water. The objects discovered in and near them, too, point to their use as centres of daily life—stone implements and obsidian flakes, refuse of metals, moulds for the manufacture of arms in bronze, and arms and other objects in bronze, rough, prehistoric pottery, including large *dolia*, kitchen refuse, etc. Their structure, too, is entirely directed to their use as fortified habitations, and to the possibility of defending them. The doorway is as a rule about 1·50 mètres (5 ft.) high by 0·80 mètre (3 ft.) wide at the base, and it can be seen that the door itself was closed from the inside. The architrave is a single block. The largest known to us is that of the Nuraghe Pontis, near Bortigali (Fig. 3), which is 3·60 mètres long, 1·10 mètre high, and 1·55 mètre deep; while the largest door known to us is that of the Nuraghe Bara, near Macomer, 2·10 mètres high by 1·10 mètre wide. Immediately within the door, on the right as a rule, is a small niche, affording space for a man to stand and strike down the enemy who attempted to enter, without his being able to protect himself with his shield. On the left a winding staircase ascends to the upper portion of the nuraghe; while going straight on another doorway leads to the main chamber, which is circular, about 5 mètres in diameter, often with two or three niches in its walls, and lighted only through the door and by the small hole which generally occurs above the architrave of the door, which is probably introduced to lighten the pressure upon the latter, as in the tholos tombs at Mycenæ.* Ascending the staircase in the thickness of the wall, which is sometimes lighted by small light holes, the

* Pinza's idea (*op. cit*. p. 93, n. 1) that these holes may have been closed by slabs bearing some form of ornamentation in relief cannot be accepted.

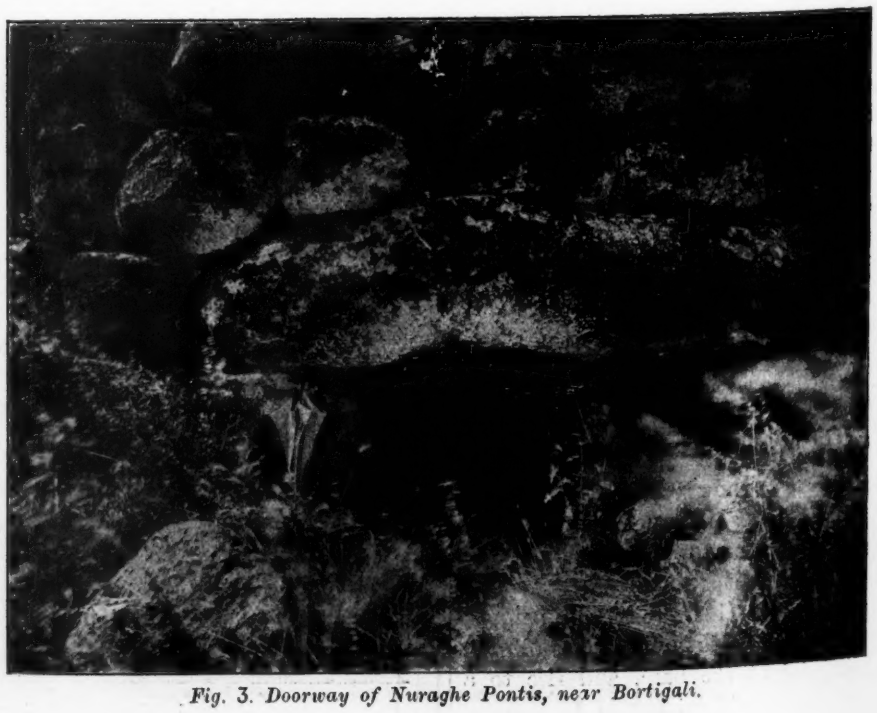


Fig. 3. Doorway of Nuraghe Pontis, near Bortigali.

upper chamber (immediately above and concentric with the lower one, though naturally smaller) is reached. It is lighted by a large window, which is over the entrance-door below and faces almost invariably south or south-east. The staircase continues above this chamber to a terrace at the top of the nuraghe, commanding a view of the surrounding country.

This is the normal type of a simple nuraghe with an upper chamber; but there are many variations in type, and many nuraghi are strengthened by additional fortifications, by projecting platforms or bastions, up to four in number, often containing additional chambers. The Nuraghe Orolo (Fig. 4) has an outwork in front of the main entrance, consisting of two towers, one on each side of it, connected by a corridor, and in the Nuraghe Losa (see Pinza, *op. cit.*, pl. vii., viii.) the central building —which has had two chambers added, one on each side of the entrance, and a third behind (with a separate door into it) making its plan triangular instead of roughly circular—is further defended by an external wall, in which are two* small nuraghi as towers, while in front of the entrance is placed a round tower with loopholes, the purpose of which (whether it was a temple or an additional fortification) is uncertain. The whole is again surrounded at some distance away by a wall enclosing a much larger space, with a tower at its south corner. At the Nuraghe Lugheras and the Nuraghe Palmavera (both recently excavated and awaiting publication) the approach to the main door of the original nuraghe is further protected by two outer courtyards, through which it was first necessary to pass. At the Nuraghe Caraggiu, near Bortigali, there is a group of buildings north of the principal nuraghe which served as a fortified approach, a curving passage, with a niche in its darkest part, leading to the door of the nuraghe itself.

Devices for rendering the approach from the upper to the lower chamber difficult are not uncommon; such as sudden vertical rises of 6 ft. or more in the stairway, or making the steps begin at 6 ft. or more above the ground. The

* There was probably a third, as the symmetry of the plan requires; but the excavations are as yet incomplete. Even Pinza allows the defensive purpose of these outworks (*op. cit.*, p. 126).

Fig. 5. Sepoltura dei Giganti at Bidile Piras, near Abbasanta.

nuraghi, too, often contain hiding-places for weapons, etc., which are purposely made difficult of access. The comparisons which Pinza makes (p. 132 *seq.*) with the "sesi" of Pantelleria and other buildings, which are obviously sepulchral, are not sufficiently close to prove his point; the differences are more important than the points of similarity. Professor Sergi, in his recent work, "La Sardegna" (Turin, 1907), p. 11 *seq.*, expresses himself as entirely in favour of Signor Nissardi's conclusions; and the writer, who has visited many nuraghi with the latter, is of the same opinion. As already observed, there exist two types of tombs, which belong probably from the objects found in them (Pinza, *op. cit.*, p. 271)* to the period of the nuraghi. The first are the so-called *Sepolture dei Giganti*, oblong trenches excavated in the soil, with a line of stones or a rough wall along each side and at the end to support roofing slabs; the bodies were laid across the length. They had often a large headstone (Fig. 5), with a square hole in its lower portion, which has more commonly a rounded top (Pinza, *op. cit.*, p. 258, pl. xix., Figs. 1, 2), and in front was an open area, with a curving line of stones starting from each side of the headstone to form a semicircle. Of the six stones that remain of a line that ran parallel to a now destroyed tomb at

* This is denied by Zanardelli (Bullettino di Paletnologia Italiana, xxv. (1899), 109 *seq.*).

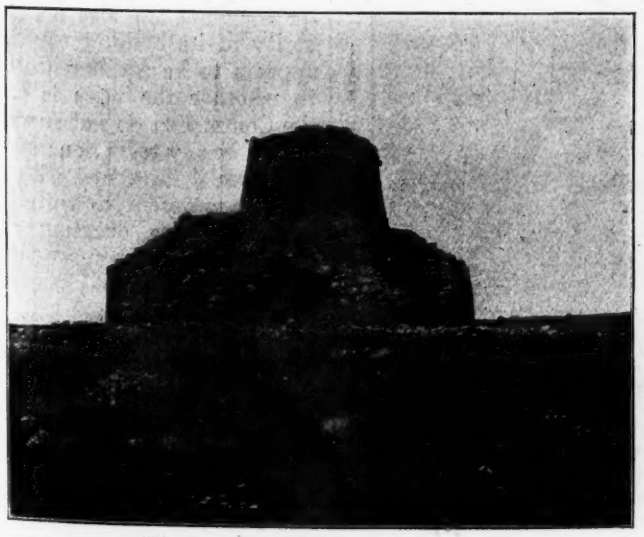


Fig. 4. Nuraghe Oro'o, near Silanus.

Tamuli, three have breasts, as if to distinguish the sex of three of those buried in the tomb (Pinza, *op. cit.*, p. 262). Here, too, we see that the race that constructed these tombs were able to carve stone carefully when it suited their purpose.

The others are the Domus de Gianas (houses of the fairies), which are cut in the vertical sides of cliffs or rocks, either single chambers or more frequently groups of chambers intercommunicating; their size is small, and they resemble in many ways the Sicel tombs of south-east Sicily. The objects found in them and especially in those of Anghelu Ruju, near Alghero, belong to the æneolithic period, *i.e.*, to the age when, though stone implements continued to be employed, the use of metals had already begun. (See Pinza, *op. cit.*, 38 *seq.*: Taramelli in "Notizie degh Scavi," 1904, 301 *seq.*) The former class of tombs are obviously a developed form of dolmen. The dolmen with a small square hole ("finestrino") is found indeed at Monteracello, near Comiso in Sicily (see below), as well as in North Europe; and the *Sepolture dei Giganti* are probably examples of this also.

Sardinia possesses also dolmens of the more primitive type, despite Pinza's statement to the contrary (*op. cit.*, p. 276). One of these, which bears the name "Sa perda e S'altare," lies close to the main line of railway, near the station of Birori, south of Macomer. It is the only one which now preserves its covering stone. It is shown in Fig. 6. It has also been published by Taramelli in "Bullettino di Paletnologia Italiana" xxxii. (1906), 268 *seq.* The irregular vertical stones are seven in number, and rise about 1 mètre from the ground; the covering stone is roughly rectangular. Menhirs are also to be found in Sardinia, and their distribution over the island is wide, though comparatively few of them have hitherto been recorded. Fig. 7 shows an example in the neighbourhood of Fonni, which is a little to the east of the centre of the island, in a remote district; others are found near Macomer in the centre of the island; others still away from the sea, both north and south of the actual centre; and they also occur in the centre of the east coast (near Tortoli), and on the south-west coast (near Sulcis, the modern S. Antioco).

The distribution of dolmens and menhirs in Europe is interesting. They are found nowhere in Greece or the Ægean, and only sporadically in North Africa. In Sicily and Italy they are very rare indeed.

The megalithic monuments of the extreme heel of Italy (that part of the province of Lecce called the "Terra d'Otranto") are the only dolmens and menhirs known to exist in Italy itself. A full list of them is given by Nicolucci in the "Atti dell' Accademia Pontaniana," xxiii. (1893) (also separately under the title "Brevi Note sui Monumenti Megalitici di Terra d'Otranto"), and the more important of them are described by Pigorini in the "Bullettino di Paletnologia Italiana," xxv. (1899), 178 *seq.*, with photographs. Seven dolmens are still extant, while others have been destroyed of recent years (*id.*, xix. (1893), 347). Pigorini in the former article maintains a theory originally expressed by G. de Mortillet in 1874, that the dolmens belong to the æneolithic or early bronze age, and that they are really equivalent to the sepulchral grottoes of the same period in Sicily and the tombs in the bare earth of the same period in Lombardy or Emilia, and do not denote a different race or civilisation. See Modestov, "Introduction à l'Histoire Romaine" (Paris, 1907, p. 81).

In Sicily traces of the existence of dolmens have hitherto only been found at Monteracello, near Comiso, where three different types of tomb exist, according to the different nature of the rock—the enlarged natural grotto, the artificial grotto (regular and irregular), and the small chamber of slabs originally surmounted by a mound—the dolmen, in fact (Orsi in "Bullettino di Paletnologia Italiana," xxiv. (1898), 192, 202).

Prof. Montelius, on the other hand, considers that dolmens came from the East by way of North Africa. The point is one of considerable interest, and one which further study and excavation may be expected to clear up.

In Sardinia, as we have seen, they are fairly well distributed; while in Corsica they appear in two groups, one in the north and one in the south of the island, there being only uncertain traces of them in the centre. See the careful study of M. A. de Mortillet in "Nouvelles Archives des Missions Scientifiques et Littéraires," vol. iii. (Paris, 1892), p. 49 *seq.*

In Western Europe generally and in our own islands they are not uncommon; and comparative investigation may give interesting and important results. This is a work which the British School of Rome is by its position fitted to undertake, and which it is not without hope of undertaking.

Fig. 7. Menhir, near Fonni.

Fig. 6. Dolmen, near Birori.

NOTES.

[Holborn to Strand Vacant Land.

THE Improvements Committee of the London County Council have made some sensible proposals in regard to the disposal of the surplus land in the area of the Holborn to Strand improvement. Portions of the surplus land, including some very valuable sites, have been available for letting for four or five years, and all the ordinary methods of disposal have been tried more or less unsuccessfully. Most of the land in the side streets has been disposed of, but only six sites in Kingsway have been let, and none in Aldwych or the Strand, except in two cases of reinstatement, and a large amount of land with important frontages is still unoccupied. As our readers know, the Council has been generally blamed for this state of affairs on the ground of the high price it is asking for the land and also because of the severity of its building conditions. There appears to be a difference of opinion as to whether the price is too high, and the Committee do not suggest that there should be any reduction: but the critics of the Council have met with more success in their representations that the building conditions are exacting and onerous, for the Committee suggest that the conditions should be modified, shortened, and simplified. In the arbitration clause, for instance, they propose to provide, as hitherto, that disputes arising between the Council and its lessee before plans and specifications have been approved shall be decided by the Council's arbitrator; but that disputes arising after such approval shall be decided by an arbitrator to be agreed upon between the

parties, or, if they cannot agree, to be nominated by some person to be named in the building agreement at the time when it is executed. The Council decided in 1903 that the clause to be inserted in the conditions with regard to land fronting the Strand, Aldwych, and Kingsway should provide that the elevations of the buildings on the land should be of marble, granite, Portland or other approved stone or brick, and should be of such design as the Council approved as worthy of the position. The conditions as amended provide that a lessee shall erect a building of an elevation and of materials to be approved by the Council, and the condition mentioned above is therefore no longer needed in a separate form. This will, we believe, do much to meet the views of the Council's critics, and the land should not long remain vacant, especially as it is proposed that until further order leases of the land now unlet on the area of the Holborn to Strand improvement be granted on the basis that the rent for the first year be a peppercorn, for the second year one-fourth, for the third year one-half, and for the fourth year three-fourths of the rent to be paid in the fifth and succeeding years, and that the appointment for one year of a firm as agent, in addition to the Council's valuer, to deal with the disposal of the surplus land from the Holborn to Strand improvement be approved.

Trade Unions. PUBLIC attention has during the past few months been so much drawn towards the subject of trade unions that the recent Report of the Registrar of Friendly Societies dealing with these societies is invested with unusual interest. Those trade unions which are registered under the Trade Union Acts are required to make returns to the Registrar (who is the Registrar of Friendly Societies), and the present Report gives these returns up to the close of the year 1905. The Report shows that in 1875 only 151 unions made such returns, with a membership of 282,245 members, an income of 331,205*l.*, and a balance of funds amounting to 405,755*l.* In the year 1905 660 unions made returns, showing a membership of 1,567,519, an income of 2,557,180*l.*, and a balance of funds of 5,449,763*l.* Of these unions 574 are in England and Wales, 40 in Scotland, and 71 in Ireland. The expenditure of these societies is given as 2,506,024*l.*, but the present Report does not furnish the objects on which this amount was expended. Much has recently been said in Parliament of those railway companies and dock companies whose directors voted small sums to a society which took part in municipal elections with a view to obtaining some reduction in the high rates which were prejudicing the ordinary shareholders, yet Parliament has unhesitatingly granted increased immunity to trade unions, societies, as appears above, with enormous funds, and which openly and legally expend some portion of these funds, not on municipal matters, but on political objects—the returning of members to Parliament and their maintenance when there (see the recent case of Steele *v.* South Wales Miners' Federation, commented upon by us January 26 last). The Government has expressed the intention of legislating with a view to preventing companies from contributing to political objects, and it is hard to see why the trade unions should be allowed to do so with immunity.

Workmen's Compensation Insurance. THE case of Holdsworth *v.* Lancashire and Yorkshire Insurance Company (the *Builder*, *ante*, p. 588) draws attention to the subject of insurance under the Workmen's Compensation Act. The plaintiff was a master joiner and builder who had insured his employees under the Workmen's Compensation Act, 1897. The insurance had been effected through an agent, and in the proposal form the plaintiff had been described as a "joiner" only. The plaintiff had drawn the agent's attention to this, and after communicating with the Leeds office of the insurance company, on instructions from the chief clerk there the agent had added the word "builder" to the policy. A man employed by the plaintiff was killed whilst engaged on a building operation, and the defendants disputed their liability under the policy on the ground that the plaintiff was uninsured as a builder, the agent having no authority to alter the policy. The court found for the plaintiff on the ground that as the insurance company had received the premiums with full knowledge of the facts, the knowledge of the agent being their knowledge, they were estopped from disputing the policy. The question as to the agent's authority was not decided. At the present time every employer of labour is being solicited by the numerous insurance companies to effect insurances under the new Workmen's Compensation Act which will come into force in six weeks' time. This Act is drawn in such vague terms that the insurer will have some difficulty in knowing whom he is to insure, but the above case illustrates the necessity for caution and exactitude, especially when dealing with agents.

Architects under the Labourers (Ireland) Act. WE have received copies of a correspondence between the Institute of Architects of Ireland and the Local Government Board in regard to the scale of charges which has been fixed by the Board for architects carrying out cottages under the provisions of the Labourers (Ireland) Act, 1906. This the Board have fixed at a maximum rate of 2½ per cent. commission. It should be understood that the Local Government Board supplies stereotyped drawings and specification for such cottages as are contemplated, and in that case 2½ per cent. on the outlay is perhaps adequate; but a rural council has the option of not adopting the Board's stereotyped plans, but appointing an architect of their own to plan and supervise the cottages built under the Act; in which case, however, his commission is still legally restricted to 2½ per cent. This, of course, may result in great unfairness to the architect in special cases, and the Institute of Architects of Ireland claim, with justice, that as the public representative body of the profession in Ireland they ought to have been consulted on this part of the provisions of the Act. They are now met with a refusal to reconsider the provisions or to receive a deputation from their body on the subject, under the plea that it is too late and that the provisions were fully considered in drafting the Bill—the plea of *non possumus*, in fact. It is not a fair or reasonable treatment of the profession in Ireland or of its representative body, who have certainly a right to complain.

Highway Maintenance. IN the last issue of the *Journal* of the Sanitary Institute Mr. A. Gladwell, Engineer to the Eton Rural District Council, gives a descriptive specification of a system devised, and, we believe, followed by him, for repairing and re-surfacing existing roads. The first proviso is that the foundations should be strengthened and the surface made good so as to give a reasonably correct contour. Then should be spread upon the surface, without scarification or tarring, a matrix about ¾ in. thick of stone screenings, from ¼ in. to ⅜ in. gauge, containing such proportions of tar, pitch, resin, lime, or cement as experience may dictate. Over the matrix is to be laid a 2-in. coating of granite or other suitable metal of not less than 2-in. gauge. This layer is to be rolled until the matrix begins to appear in the interstices, and Mr. Gladwell very properly insists that not a single ounce of sand or dust must be put into the structure of the road or on its surface. This programme is a good one, for if no fine material is used there can be no dust or mud save the small proportion resulting from attrition. The author believes that it will cost no more to re-surface a section of road under his system than under the old atrocious method of binding with sand and mud, while there ought to be a considerable saving in watering and sweeping. Our idea is that the system proposed would be improved by including a finishing coat of bituminous material so as to make quite sure of filling completely all interstices between the fragments of road metal.

Expenses of Repairing Roads. THE case of Rex *v.* Garrett (current Law Reports) decided a question under the Metropolis Management Amendment Act, 1890. Sect. 3 of this Act enables the local authority to make up and repair carriage roads which are not repairable by the inhabitants at large, short of paving them and making them new streets for which the authority would become responsible. The expenses so incurred are in the first instance to be paid by the local authority, but these can be apportioned upon and recovered from the owners of houses or land bounding or abutting upon the road in the same manner as the expenses of paving new streets, and the section provides that these expenses can be recovered by the local authority "in a Court of competent jurisdiction." It has necessitated an appeal to a Divisional Court and to the Court of Appeal to determine the meaning of these latter words, but the Court of Appeal have now decided that these expenses can be recovered like expenses of paving under the Metropolis

Management Acts, *i.e.*, in a summary way before a Metropolitan Police Magistrate.

The College of Technology.

A PETITION for the incorporation of the Imperial College of Science and Technology has now been filed in the Privy Council Office, and, therefore, in due course there will be created an independent college—the London Charlottenburg, as it has been called. On the whole, it appears to be as well that this body should not be affiliated to the University of London. A separate college, if sufficiently large, is more likely to be efficient than one which merely forms a part of an existing University—a personal note, a desire to do credit to its existence, is of great importance, and these characteristics are best secured by an independent existence. We are, as a rule, an illogical people, but now and again we are inclined to be suddenly too precise. Some thirty years ago a Supreme Court was formed which was to have a marvellous effect on the harmony of English law; its results have been by no means what was expected. In the same way some persons wish to swallow up all educational bodies in London in one University, without sufficient consideration of all the special circumstances of the Metropolis.

The American Engineering Societies' Building.

BY the opening of the commodious premises in Thirty-ninth-street, New York, a joint home has been provided for all the engineering institutions, with one exception, whose headquarters are identified with the commercial capital of the United States. The exception is represented by the American Society of Civil Engineers, who, having already a sufficiently roomy building of their own, decided to abstain from participation in the scheme. The three bodies upon whom will devolve the management of the new institution are the Societies of Mechanical, Electrical, and Mining Engineers, but the building will also constitute the home of the Naval Architects and Marine Engineers, the Heating and Ventilating Engineers, the National Electric Light Association, the New York Railway Society, the Tramways Association, the Chemical Engineers, and various small organisations unable to afford the cost of erecting or maintaining independent buildings. It is to be hoped that the movement now inaugurated may lead to the closer association of the various branches of the engineering profession, and that it may serve as a useful object lesson to British engineers. At the present time there is an excellent opportunity for the discussion of a similar project in London, since we understand that the Civil Engineers will be obliged before long to give up their house in Great George-street, the Electrical Engineers are already making preparations for building, and the Mechanical Engineers could doubtless arrange for their house to be taken over as an addition to the adjoining Office of Works. As for the remaining engineering societies of London, there are none possessing adequate accommodation, although all of them would be able and ready to contribute their share towards the maintenance of a central engineering institution.

Long-distance Telephony.

THE paper on telephonic transmission by Messrs. Cohen and Shepherd, which was read to the Institution of Electrical Engineers last week, marks an important advance in telephony. By means of the oscillograph they have made a thorough experimental study of the wave forms of the pulsating currents in the wires connecting the transmitter and the receiver. With certain lengths of telephonic cables they have found that the wave form of the current gets distorted, and in these cases it might be expected that the sounds produced in the receiver would be very different to the sounds at the transmitting end of the line. It was found, however, that in some of these cases the "sounds" were perfectly intelligible. The human ear apparently has an instinctive power of recognising what must in reality be the merest phantoms of speech vibrations. The essential condition for good working is the magnitude of the vibrations set up in the receiver; the distortion of the wave form is a secondary consideration. This result seems to show that the ordinarily accepted theories need modification, and is therefore of great practical importance. The authors carried out their elaborate and costly experiments in the laboratory of the National Telephone Company, and the company shows a commendable public spirit in allowing these tests to be published. In the latter part of the paper results of great technical interest are published. They prove that the theory first enunciated by Oliver Heaviside twenty years ago is substantially correct, and prove how foolish and short-sighted were the attacks of the self-styled "practical" men on mathematical theory, which was far too abstruse for them ever to understand. We were very glad to hear Major O'Meara, the new Electrical Engineer to the Post Office, say that these formulæ were now in everyday use in his department. It is only by the cordial co-operation of mathematicians, physicists, and engineers that the exceedingly important problem of long-distance telephony can be satisfactorily solved, and we hope that the relative credit to be attached to the discoveries by the workers in the various fields will be ungrudgingly given in the future.

Boiler Explosions in 1906.

FROM the annual report of the Board of Trade we learn that the number of boiler explosions during the year ending June 30, 1906, was the smallest for any year since 1887, and that fewer persons were killed and injured than in any year since 1882, when the first Boiler Explosions Act came into force. These results may certainly be taken as a satisfactory indication of the greater care bestowed on steam boilers, but the contents of the report show very clearly that the number of mishaps could easily be reduced by one-half. Thus, of the fifty-four explosions that occurred, no fewer than thirty were due to the ignorance or neglect of attendants, excessive working pressure, and defective design, material, and construction. All these are conditions that could be guarded against if owners were but ready to give up false ideas of economy and to avail themselves of the assistance offered by boiler insurance companies. Neglecting three explosions due to miscellaneous causes, the remaining twenty-one accidents were attributable to deterioration or corrosion, which could probably have been detected in time by careful inspection at regular intervals. The reasonableness of our proposition is demonstrated by the statement that twenty-two of the boilers—a term which, in the meaning of the Acts, covers pipes and other receptacles for steam—were not subject to systematic inspection. Our readers who have occasion to choose steam boilers for use in buildings may be interested to learn that the year's explosions related to only one water-tube boiler, twelve vertical and horizontal cylindrical boilers, and nineteen locomotive and other multi-tubular boilers. The almost complete immunity of the water-tube type is most likely due to the fact that such boilers are invariably placed under the care of skilled attendants, the other classes being very often entrusted to ignorant persons in whose hands a multitubular boiler is certainly more hazardous than one of the Cornish or other simple cylindrical type.

NOTES AT THE PARIS SALONS.

By H. HEATHCOTE STATHAM.

IT seems to be the general opinion in Paris that the Salon picture exhibitions are not of a high average this year, and that is my own impression. I should say that the proportion of good and interesting pictures at the Academy is larger, in relation to the total number exhibited, than at the Salon; but the scale, both in number and in size of the works, is so much greater at the Salon that it is difficult to draw a fair comparison; and it must be admitted that pictures which have looked important and striking at the Academy seem to have shrunk both in scale and power when one meets them again (as in some cases) at the Salon. There is an exception in the case of Mr Hughes-Stanton's "Pas-de-Calais," which, when it was exhibited at the New Gallery last year, was characterised in the *Builder* as being more like a French than an English landscape, and which holds its place well in the large Salle I. of the Salon; moreover, it has been purchased by the French Government.

But when one begins to go through the pictures systematically, it is surprising what a number of fine things are to be picked out from among this chaos of canvases. Perhaps it may be more useful, instead of attempting a general review, to go through the galleries in their order of numbering, mentioning, not everything that has merit (which would be impossible), but the works in each room which ought not to be missed; and this will assist any of our readers who may visit the Salon in finding these pictures, for the rooms at least are numbered consecutively, though the pictures are not. And English artists and amateurs ought to visit the Salon more, or they have not a well-balanced idea of contemporary art. I have been astonished sometimes to find English artists, members of the Royal Academy, totally unacquainted not only with the works but even with the names of some of the most gifted French painters and sculptors of the day. Bouguereau exhibited frequently at the Academy, and hence he is familiar to Londoners; but how many English people know anything of the works of M. Gervais, unquestionably one of the greatest living French painters, but who has not (as far as I remember) exhibited in London? The only English amateur I ever met who said he knew M. Gervais' name I found, on further conversation, had confused him with M. Gervex, an artist of quite inferior aims and method! People who care about painting at all ought to know more about French art than that.

THE SOCIÉTÉ DES ARTISTES FRANÇAIS (OLD SALON).

Mount the grand staircase then to the large central Salle I., too often rather a chamber of horrors, and containing one horror this year in the shape of M. Laparra's "Le Piédestal," a huge upright at the top of which is a temple of fame with an equestrian statue, entirely supported on a mound of dead bodies, with mourning widows and children at the base, whence one or two rivulets of blood meander. It is not without power; one cannot pass it over; but it is a kind of moral screech rather than a picture. This room is the natural receptacle also for those large decorative paintings for the walls of public buildings which are so much encouraged in France; M. Dupuy's "Le Blé" is one of these; a State commission, probably to find its place in some provincial mairie; I have seen better things of the kind, but it is a fine broadly painted open-air scene with its sunlit stacks of corn and foreground figures. Then there are pictures for the times, and patriotic pictures; M. Girardot's "Les Dieux s'en Vont," where tritons and mermaids are scared at the sight of a fleet of modern battle-ships; a ghastly picture by someone of a street fight in connexion with a strike; and M. Chartier's "La Veille de Waterloo," showing a knot of English officers and soldiers running before a charge of cavalry directed by Napoléon in person. I thought at first this was a piece of French gasconade, but a reference to Mr. Rose's "Life of Napoléon" shows that it is quite correct; a part of the English rear-guard were very nearly caught by the French cavalry in the open, and had to race for it into Genappe before they dared make a stand. It may be said that this is history and not art; but it is part of the business of painting to illustrate history, and it is a spirited picture.

Turning to the right into Salle II., we find Mdme. Demont-Breton's "Les Oiseaux de Mer," one of her pictures of sea and children which are always charming in the figures and fine in the treatment of the sea, though this is not equal to some previous works of the same class; and her smaller picture "Dans l'Air Pur," two little nude children by the margin of the sea. M. Delobbe's "Jeune Faneuse," a girl in a blue skirt doing up her hair in the hayfield, should not be missed; it is a capital piece of work.

Salle III. contains a good sea-picture, M. Duvillier's "Vent d'Ouest," and two good landscapes, M. Dubois' "Bord d'Etang," and M. Delaistre's "Paysage de Septembre," somewhat loaded in effect but in a broad style; and in Salle IV. M. Duprè's two landscapes are to be noticed. Going on to Salle V. we find in M. Hanzen's "La Mer Noire" a really fine sea-painting, both in regard to colour and to the movement and swirl of the water; such true painting of sea is unusual in a French exhibition, and one is not surprised to find that the artist is not a Frenchman; he is a Russian domiciled in Paris. M. Glaize's large picture of Dante and Virgil in the second circle of the Inferno is seriously meant but not altogether successful; the heads of Dante and Virgil are seen in the foreground, with their backs to us, so that we look with them at the cloud of spirits among whom Paolo and Francesca are swept along, but this portion of the picture is rather vague and wanting charm either of colour or design, and the figures of Paolo and Francesca are not sufficiently made out to be interesting. M. Delobbe's other work is in this room—"L'Age Heureux," not equal in colour and texture to his hay-maker already mentioned, but a very pretty and fanciful design; and as I happen to have a photograph of it, an illustration is subjoined.

Salle VI. contains two of the most important pictures in the exhibition. M. Gervais' "Le Miroir" shows two classic figures partially draped in richly coloured stuffs, gazing down upon a horizontal mirror on a stone table carried by a baluster column; a quadrant colonnade fills up the background; an abstract work in a grand style of design and colouring. Here is also found one of M. Didier-Pouget's two large and powerfully painted landscapes, "Lever de Lune," a moonrise over a belt of trees, with a pond in the foreground; there is a certain hardness of texture in this, but an effect of great power and reality, though the moon, as in

"L'Age Heureux": by M. Delobbe.

so many cases, is too large. There are two State purchases in this room—M. Fouqueray's picture of the deck of the *Ça Ira* after her desperate fight with an English ship in the Revolution days ("24 Ventôse, An. III."), the English officers raising their hats in respect to their conquered foe—a picture obviously bought for patriotic reasons, and not a very good painting; and M. Desvarreux' picture of a scratch brigade of the same period marching "Vers la Frontière," not without spirit but also evidently a patriotic purchase (the motives for State purchases seem to vary between art, patriotism, and topography; but art has its share). Among noticeable pictures in this room are M. Debon's personification of what we call a will-o'-the-wisp—a figure of a nymph of the marsh with a light, in which he has been thinking of Henner. M. Deligny's "Brillants de Cuivre" is a grand piece of still-life painting.

In Salle VII. M. François Flameng's two portraits of ladies, hung opposite each other, form a striking contrast; the one a portrait *de luxe* of a lady in light blue dress backed by trees; the other, called "Soir de Mai," a portrait treated poetically, the lady seated in twilight with dark trees and the starry sky as a background; a remarkable work. In this room also are to be noted Mr. Ridgway Knight's fine and pathetic figure "Orpheline"; M. Galliac's small and brilliantly executed painting of a nude figure "dans l'atelier"; M. Jolyet's "Jeune Fille aux Osselets," very original in character and colour; and Mdme. Lauvernay-Petitjean's "Giroflées," a fine still-life painting of a brass vase and flowers.

In Salle VIII. is a beautiful circular half-length portrait of a lady by M. Ferdinand Humbert, remarkable for its feeling for colour and for a free yet delicate style of execution almost suggestive of water-colour. Another fine figure picture is M. Guinier's "Jeune Fille et Pavots," a partly nude half-length backed by a decorative suggestion of vegetation which just assists without distracting attention from the figure; a work in a truly artistic spirit. To be noticed also are M. Matisse-Auguste's "Au Large," a study of open sea under a weird and threatening aspect which is unusual but may be quite true; M. Guillemet's fine broad seacoast landscape "Equihen"; and some cats by Mdlle. Hazon which rival those of Mdme. Ronner.

In Gallery IX. there is no important work, but M. Hébert's portrait in a black frame has a style and distinction of its own; and M. Isembart's "Brume de Novembre" and M. Michel's "La Jordanne" are two good landscapes.

Salle X. is one of the hexagonal angle pavilions where usually works of minor importance do penance, but this one contains M. Didier-Pouget's other landscape, his favourite effect of a high foreground with heather and a misty valley beyond; like all its predecessors it is painted with extraordinary power and truth, and as a matter of mere force would crush any landscape in the Academy; but it cannot be denied that these pictures are practically repetitions of the same composition, and the position of this one in the hanging is probably intended as a hint to that effect. It is a pity we do not sometimes see this artist represented at the Academy.

Salle XII. contains an interesting Jeanne Darc picture by M. Herrmann-Léon—"Première Vision," showing Jeanne as a peasant girl with sheep-dogs round, looking up at a vision in the clouds of herself on a war-horse; the sincerity and simplicity of the conception are very pleasing. Here too are the two landscapes, beautiful but alas! only small works, of the veteran landscape painter, M. Harpignies, from whom possibly we cannot look for any more works on a large scale. M. Lybaert, whose highly finished mediæval pictures have attracted attention a year or two since at the Academy, has a fine little picture in the same hard and microscopically finished style, "L'Enfant Jesus," with some beauty, and remarkable execution of detail in all the accessories. Mdme. Fould's "La Danse du Paon aux Pays Kherms" is a curiosity worth looking at—a woman nude to the waist and with trailing robes imitating peacock plumage; it is said to represent a local custom, but the head of the figure is European.

Salle XIII. contains two remarkable pictures; M. Aimé Morot's splendid and terrible painting of a lion, one of the most powerful wild beast studies I have ever seen, and M. Farré's "L'Après-midi d'un Faune"; the title is taken from Debussy's composition which has frequently been heard from the Queen's Hall orchestra, but what it shows is a lady lying on the ground beneath the shadow of a tree on an obviously very hot afternoon, with the additional shade of a red parasol for her head; the figure of a stone faun is seen through the foliage; it is a striking play of fancy on the composer's idea, and is a very fine vigorous piece of painting in every sense. Here too is a small picture by M. Jean Paul Laurens, "Pietro," a study of a Florentine man on a Florentine balcony, watching something which is hidden from the spectator; there is no story in it; it is a picture for the sake of a picture. M. Lefort-Magniez' "La Vallée d'Equihen" and M. Paul Lecomte's "Bords du Cher" are good landscapes.

Salles XIV. and XV. contain nothing of much importance. In Salle XVI. are Mr. Henri Martin's two works, not of importance relatively speaking, considering his great exhibit of last year, and others in previous years; but there is also the small and perfect little picture by M. Franck Bail—"Jeune Servante Versant du Lait"; a single figure engaged in a simple action; no accessories but two brass vessels and one of earthenware; such are the materials out of which a master can make a real work of art. A painter whose name is unfamiliar—M. Kowalsky, has a charming picture of "Colin-Maillard" (blind man's buff), a ring of girls, in somewhat idealised costumes, at play in

D

the midst of a meadow; but one would not perhaps have noticed this specially but for coming across the same artist's other work in Salle XVII. This is entitled "Le Volant," and represents a girl playing with battledoor and shuttlecock in a meadow with broken sunlight flecking the grass; a work quite out of the commonplace, and owing its whole effect not to subject but to the painter's vision of the beauty of a simple incident of life and action. M. Lenoir's "Heure Douce," a fine thoughtful face in front of a wooded background, is a good work. M. J. Girardet's "Les Foins à Trianon," Marie Antoinette and her ladies playing at haymakers, is a picture historically interesting and well done. M. Olive's "Brisants au Soleil—Marseille" is one of the Government purchases, one does not see very well why; and M. Mathieu's "Bords de la Vienne—à Matin" is a really fine landscape, a powerfully painted foreground and a great purple hill in mist in the background.

In Salle XVIII. M. Albert Maignan's large painting of "La Toison d'Or," is an instructive contrast to the feeble work in the Academy under the title "Jason and Medea." M. Maignan's picture at all events is not *genre;* it is a treatment of classic legend in a monumental style and with no little power; Medea is distinctly a dangerous person, and the study of the dragon is magnificent. We have had no such treatment of classic legend at the Academy since Leighton; and M. Maignan is superior to Leighton both in colour and in breadth of style. In this room is a grand coast landscape, "Un Grain à la Hague," by M. Motely, a painter who has only recently become prominent, and who has a wonderful power in the treatment of effects of storm and wind; we have here the flat Holland coast half seen through rain, a "dirty" sea, and a great brown sinister-looking storm-cloud lowering over the whole. M. Prat's "Idylle" is perhaps rather cheap poetry, with a reminiscence of Henner about it; but it is poetry. M. Motte's two strange little pictures, "Les Yeux de Cauchon" and "La Fresque Vivante," should not be overlooked, there is a defiant originality about them; and M. Marchetti's brilliant picture on a small scale, "Mariage Ducal à la Cathédrale de Bron," crowded with small figures and minutely finished in every detail, almost recalls Meissonier.

Salle XXI. contains at present five great cartoons for tapestry, I believe by M. Toudouze, which do not enter into the catalogue of the exhibition, but are well worth looking at in passing, as examples of how tapestry pictures should be designed—a matter which the French fully understand. In Salle XXII. a Dutch painter, Herr Pieters, has two fine landscapes; there is another by M. Pail, "Le Matin à la Source," and a fine stormy scene by M. Moisset, "Coup de Vent sur la Côte Normande," an effective composition out of very simple materials. In Salle XXIII. again is a fine forest landscape by M. Richet, and M. Rochegrosse's "Le Bain de l'Impératrice Théodora," which people look at because he is a popular painter, but which is not worth very much. M. Léon Perrault's "Charmeuse," a little seated nude figure with a bird on her hand, is a pretty idyllic work. M Henri Perrault's "Fantaisie" in Salle XXIV., two nude figures among trees, is also good in its kind, and the only thing in this latter room worth attention. And in the next two rooms one can only afford space just to mention two or three things: M. Chrétien's admirably painted *genre* picture "Gourmandise," a girl carrying a basket of grapes and surrounded by other very well painted accessories; M. Watelet's portrait of a girl in a low purple dress; M. Saintpierre's "Kheira—La Préférée," a study of a rather weird beauty of the harem; Mr. Bacon's picture "Une Voix," formerly at the Academy, and which keeps its place very well here; and in Salle XXVI. a striking work by an American artist, Mr. Ryder—"Ce que Rend le Mer."

But in Salle XXVII. we come on the one picture by M. Mercié, the great sculptor, who has recently taken to painting, and paints as if he had never done anything else. His small nude, "Le Sommeil de Vénus," who sleeps in a glade amongst the trees, is not only a beautiful figure but is interesting also by the beauty of expression in the face; it is no mere study of the atelier. M. Watelet, whose portrait in another room has just been mentioned, has in this room one of the most charming and expressive portraits in the exhibition; a lady with a large black hat and a mass of black hair, leaning forward with her lips parted as if in the act of greeting someone—a most successful attempt at catching a momentary expression. A fine landscape by M. Yarz, "Soleil Couché," is another attraction. In Salle XXVIII. we find M. Tattegrain, with one of his sea pictures, unfortunately not a successful one this time; the ship is entirely out of scale with the waves and the coast line, and looks somehow like a toy ship. M. Tattegrain can produce a fine sea sometimes, but he is very unequal and does not understand ships.

In Salle XXIX. M. Seignac has produced in his "Psyché" a picture which might have been attributed to Bouguereau, whom he imitates with a completeness which represents both the merits and the faults of his original; and Mdme. Bouguereau, an American lady (presumably a daughter-in-law of the late painter) exhibits a very charming though very hard little picture of cherubs' heads with orthodox gilt halos, under the title "Cantique de Noël." In Salle XXX. Mdme. Saumarez exhibits a charming little *genre* picture under the title "L'Enseignement des Principes: La Co-opération," a row of lower-class children seated one behind the other each plaiting the hair of the one before her; the faces are full of character. In this room we find M. Comerre's picture of Danäe, under the title "Pluie d'Or," a very fine nude without much ideality of conception. Salle XXXII. contains a fine landscape by M. Sebilleau, and a curious but poetic work by M. Thirion, "Le Lac," in illustration of a poem of Lamartine's. Salle XXXIII. introduces us to one of the most beautiful portraits of the year, by M. Vollon; a lady seated in a chair on the arm of which one elbow rests; the whole drapery is in a light amber tone with which the chair and other accessories are harmonised; the face is most engaging in expression, and the picture is entirely destitute of that rather hard brilliancy of effect which is the fault of even some of the finest of contemporary French portrait painters; you see this in M. Chartran's portrait of a lady accompanied by a peacock, in the same room; very effective, but hard and unsympathetic. M. Vollon's other work in the same room, "Jeannette," a girl with a bright blue head-dress, is as artistic in style and colour as the portrait.

Beyond this point is the double range of small rooms into which in general a good many things are crammed which are not of the best order. Salle XXXV., however, contains one of the Government purchases, M. Benner's "Rêverie," a nude figure half shrouded in drapery of a rather heated tone, and her face partly hidden and indistinct; it is hardly one of the artist's best works, the colour is unsatisfactory. The growing fashion for ballooning suggests a picture for the times in M. Arus' "Première Ascension" in Salle XXXV., which room also contains a beautiful little *genre* picture by M. Bellanger, "Ma Servante," a girl crossing the courtyard of a farmhouse, her head finely relieved against a background in which every incident is conscientiously treated. Salle XXXVII. contains the only work this year of M. Joseph Bail, "Coin de lingerie chez les Dames Hospitalières de Beaune"; contrary to the usual practice of this talented painter, it is an interior with life-size figures, two of them, and painted mainly to realise a fine effect of lighting; but it is not so interesting as some of his previous works, and I think his genius is more at home in works on the smaller scale on which he usually paints. In Salle XXXVIII. is M. Cabane's "Odette," a child in a bright red dress; and in Salle XXXIX the two landscapes by M. Biva, who has carried the art of realistic painting of foreground landscape, as one may call it, to its utmost possibilities. He generally chooses a subject with still water and overhanging trees; "Les Brumes et Rosées du Matin" is the picture typical of his work; and though in a sense this may be thought hard and prosaic painting, it has the merit of perfection in its own line: look at the detail of the foliage, the light on the grass banks, the slightly stained look of the surface of the stagnant pond—all this shows an extraordinary minuteness of observation and patience in execution; and if a painter has a special talent for producing this kind of realism, by all means let him exercise it. Salle XLI. shows us one or two landscapes of another and higher class; M. Ponchin's "Les Oliviers," for example, perhaps a little over-strong in lighting, but a powerful landscape; and M. Cabié's "Le Chêne Vert," a picture rather reminding one of M. Harpignies (M. Cabié was his pupil), both in composition and in its peculiar texture, as if it were painted on a slightly granulated surface. In Salle XLI. is the work of that interesting and original painter M. Chabas, "Premier Bain," nude children dipping and wading in that slowly rippling water which he treats in a way of his own; it is hardly equal to his work of last year, though. In Salle XLII. are the compositions of M. Simonnet, the painter of calm landscapes with no sensational incident or treatment, but always thoughtful, refined, and poetic. In Salle XLIII. one may notice M. Cayron's Society picture "Le Potin," clever enough and somewhat vulgar, but exactly representing the tone and flavour of the fashionable French novel of the day; and we conclude with a small but brilliant architectural picture, M. Béroud's "L'entrée de la Galerie d'Apollon" at the Louvre, its wrought-iron gates and elaborate gilt decoration very effectively shown.

SOCIÉTÉ NATIONALE DES BEAUX-ARTS (NEW SALON).

Why the New Salon is called "Nationale" no one can tell, for it is much less marked by national characteristics than the old one. It has its own main entrance in the Avenue d'Antin (the façade to which is perhaps the best portion of the exterior architecture of the Palais des Beaux-Arts), but the galleries are also accessible by a turnstile from Salle I. of the Old Salon, which leads into the domed central hall of the New Salon portion of the building, fine in general lines but with rather pie-crust decoration. It is the fashion among our critics always to represent the New Salon as the exhibition of higher artistic aims than the other; I read in a daily paper the other day that the New Salon "skims off the cream of French art," leaving the inferior portion to the old exhibition. This is the same stupid cant which sneers always at the Royal Academy; the standard and recognised exhibition is always wrong, its rivals are always right. The fact is that while there are some very refined painters of small figure subjects and landscape in the New Salon, in respect of large and important figure subjects and landscapes there is nothing there to compare with the finest works in the Old Salon; and as to what the New Salon can accept, let the visitor look at M. Denis's "Polyphème" in Salle VI., or M. Veber's "Le Peintre" and other things of his in Salle XVI.—things which are an absolute disgrace to any exhibition, and seem in fact to be sent in as bad jokes.

That the New Salon walls are less crowded is certainly an advantage. Salle I. contains M. Besnard's two large decorative paintings for one of the cupolas of the Petit Palais; allegorical subjects representing "La Pensée" and "La Matière" respectively. "La Matière" is represented as a kind of demon who flies downwards with a figure on his back, dragging her down from her celestial companions; the *motif* of "La Pensée" is not so obvious. Both pictures, however, as ceiling paintings, have the great merit that they are in light tones and the figures seem to float in an ideal atmosphere; realistic pictorial figures are quite out of place on a ceiling.

The number of things which claim special notice is smaller than in the Old Salon; smaller in proportion as well as in actual numbers. In Salle II. M. Aman-Jean's paintings are worth note, and in Salle III. M. Berteaux' small pictures of Brittany scenes and people; M. Binet's landscapes (the works of each artist are grouped together); and a very fine piece of what may be called life-size *genre* by M. Cottet, "Jeune Fille au Grand Chapeau Noir," in which one is glad to see that M. Cottet has given up his manner of painting everything black, and has shown the capacities of a fine colourist. In Salle IV.B is M. La Touche's series of four paintings for panels for a room at the Ministry of Agriculture, odd affairs, in which this artist's usual passion for rich colour seems to have deserted him. The room contains a bronze knocker by M. Saint-Marceaux in which the nude figure is used as a knocker in a form which would have

gone very well on an Italian door of the *Cinque-cento*, but would hardly recommend itself to a respectable householder of to-day. M. Aublet is represented in this room too, but I do not know what he is about; he, like M. La Touche, seems to have totally dropped his characteristic excellences, and his works are unrecognisable for his without the catalogue. At the end of the room M. Dubufe's "Printemps" is a charming piece of *clinquant* (no English word represents the kind of thing so well).

In Salle V. are two large decorative paintings—wall paintings this time; M. Montenard's "Marseille. Colonie Grecque," belonging to the town of Marseilles; it is no doubt intended to decorate some public room with this clear bright picture of the ancient Greek colonists landing; and M. Auburtin's very large "La Forêt et La Mer," with no special destination, but a painting in true decorative spirit.

Crossing the central hall to Salle VI. (which is in three bays), we find nothing to notice in the first bay but a vulgar capering nude by M. Roll; the second bay contains three large pictures, also of nudes, by M. Caro-Delvaille, which are fine in style and colour. In the third bay are M. Dagnan-Bouveret's pictures, of which the centre one, "Chimères," represents a draped woman with a very Leonardo da Vinci style of head, holding a glass globe on which are inscribed "Gloire" and "Amour," and backed by a gold mosaic wall festooned with crimson roses. Its meaning is not very obvious, but that is of little consequence; it is a fine work that appeals to the imagination as well as to one's sense of colour.

In Salle VIII. are M. Le Sidaner's pictures, which have been already seen in London; in Salle X. is a picture by M. Morisset which gives one pause. Under the hackneyed title "Après le Bain" is shown a large rather fat woman with no charm about her, seated with a vase of flowers near her and other effective accessories, the whole painted with the greatest brilliancy and force, with a broad sweeping touch—nothing could be finer in the way of vigour and success in handling; but to what end except merely as an advertisement of the painter's ability? Who wants a prosaic life-size nude of no charm or beauty whatever? It is a misuse of talents. Now go into Salle XI. and look at M. Guillaume's exquisitely painted little picture "Pudeur," and (though you may think it an odd illustration of "pudeur") you have a small picture of this kind, of great beauty, and not too large for the subject. And in Salle XII. we have M. Gervex's life-size nude, a new reading of Venus Anadyomene—Venus not rising from the sea, but thrown by a wave on the beach; that is a poetic conception and has a great deal of beauty; she is a Venus quite at variance with classic tradition, but at all events the figure represents an ideal, while that of M. Morisset represents only a rather gross and vulgar reality, not in the least worth the power of handling expended on it.

There is very little more that is worth special mention. In Salle XIII. are M. Damoye's collection of small landscapes, all good; in Salle XIV. M. Béraud displays his talents in a very hardly-painted picture of "Hebe," pretty but un-imaginative, and in a very clever little painting of the Bohemian humours of "Montmartre." In Salle XVI. are found M. Lhermitte's landscapes, always good and true art; and in Salle XVII. the works of one of the most accomplished French artists of the day, M. Friant, who paints on a small scale figure subjects, or figures in combination with landscape, which are perfect in their delicacy and finish, and in *nuances* of character and expression; look especially at the head of the young woman under the title "Vocation Religieuse." M. Friant is another of the painters whom we ought to see represented sometimes at the Academy; I fancy he is hardly known at all in London. He is a type of artist who is content to aim at the very best in his work without making any appeal to popular tastes or any attempt at sensational effect.

One cannot pass over M. Roll's large painting in the last room (Salle XVI.), "Caresse de Soleil," which is a fine conception—a woman half nude, in the midst of a forest glade, turning her face up in a sort of rapture to greet the flood of sunlight. But here, as in other cases, M. Roll exaggerates his effects; the face is too red and the whole thing too violent; it is a fine idea spoiled in the execution.

I defer to next week a few brief notes on the sculpture, when they can be accompanied by illustrations of some of the works exhibited.

HOME ARTS AND INDUSTRIES ASSOCIATION.

THE annual exhibition of the Home Arts and Industries Association is always an interesting and welcome event. That held last week at the Albert Hall comprised 130 village industries working under the auspices of the Association.

The Association does a useful and beneficent work. It was started nearly a quarter of a century ago—the present is the twenty-third annual exhibition—to encourage and revive the handicrafts in rural districts; its sphere of influence has gradually extended, until it now includes 130 industries. The value of the work done is at first largely dependent on the fitness and training of those in charge of the classes or of their inauguration. Some districts send to the exhibition serious contributions to handicraft; others, no doubt supported by persons with the best intentions, but themselves ignorant of the fundamentals of all crafts, send work which is disappointing if not damaging to the movement. Would it not be well if the judges who so kindly give their time and experience in awarding the little gold, red, and blue badges of merit were to write a report on the work which could be printed for the benefit of the stall-holders.

The Compton industry, under the guidance of Mrs. Watts, greets us again at the head of the stairs. The best piece of work is the figure of S. Elizabeth by Mrs. Watts, executed by Mr. R. Walker. Other beautiful objects are a sun-dial in the form of a hollow hemisphere, supported by a cupid, designed by Mr. R. Davey, and carried out by Mr. R. Walker; a copy of a Byzantine casket, by Mr. C. Candlin, and a figure of a baby, by Mrs. Dudley Palmer. The larger and more architectural objects are less happy in design, being restless in outline and over-crowded in design. There are two stalls of leadless glaze pottery. Most beautiful is that from Birmingham, under the title of the Ruskin Leadless Glaze; the ware is of extraordinary delicacy, and the colour and shapes of the objects are often delightful. Some of the work shown obtained a Grand Prize at the Milan Exhibition. Of a more useful and homely description is the ware of Mr. Norman Franks, of Westbourne-grove. The designs are a revival of old English pottery in shapes and patterns, some rather crude in pattern perhaps; others really good and very inexpensive.

In textiles the Boer Home Industries, a new development, is of interest, inaugurated two years since by Miss Hobhouse. The rugs and wall hangings shown are excellent alike in texture and design, with a distinctive character all their own. The Stonehenge Industry's woollen hand spun and woven materials are the best things of their kind made in this country; the stuffs have the charm and quiet beauty of the old woollens, and seem to be made at a more reasonable price than is the case in some revivals of this particular industry. The best work comes from Fleet and Anstey; and the work done by boys at Chailey in nursery furniture and toys is very clever and on lines which should make the boys think for themselves and develop into good craftsmen.

MAGAZINES AND REVIEWS.

THE *Art Journal* publishes an article on the Dublin International Exhibition, with some very good illustrations of the buildings and of parts of Dublin by Mr. W. Monk. Mr. Sketchley contributes an article on "Bookbindings," not ancient but modern, with a number of illustrations. A great many of these are given under the names of this or that firm of bookbinders, which is not what we should have expected from an art magazine. This is a question of design, and how can "Messrs. —— & Co." have made a design? We want to know the designer's name, not that of the firm which sells it. And anyone who looks at the illustrations will see that those which are given under the names of individual artists are of much more original and artistic character than those which are given under the names of firms.

We regret to notice that the *Burlington Magazine* publishes an article which is practically a support to the Regent Quadrant shopkeepers in their crusade against Mr. Norman Shaw's design. The reasoning is one which is quite good in itself, viz.: that architecture has to be subordinate to practical requirements; but the premises are wrong. It is assumed that shopkeepers must know best what is good for their trade. The fact is that they are simply acting on a kind of inherited superstition that it is necessary for their business to have the whole front of a shop a sheet of plate-glass. We are perfectly certain that it is not necessary; it is only that tradesmen have got into the habit of having that sort of front, and they think therefore that they cannot do without it. They will soon find the contrary if their clamour is ignored and they are told they must take the building as designed. The *Burlington* admits that Mr. Shaw's design is "the best attempt that has yet been made to design a great English street in a worthy manner," and yet they support those who would spoil it. And suppose the Commissioners for Woods and Forests are weak enough to listen to this clamour of tradesmen under an imaginary grievance, what is to be the result? Is the great mass of monumental building already carried out to be taken down again? That is out of the question. Is it then to be left as an isolated fragment, and the rest of the Quadrant to be carried out in an inferior manner, and the total effect ruined? That ought to be considered equally out of the question. To the commercial hatred of Art in this country one is accustomed, and we must accept it as a melancholy fact. But that it should be supported by a specious and totally irrelevant argument in the pages of a magazine which professes to be in a special sense an authority on matters æsthetic is still more melancholy.

The most interesting thing in the *Berliner-Architekturwelt* is the Schiller-Theatre at Charlottenburg, the interior arrangement of which seems to have been suggested by that of the Wagner Theatre at Bayreuth; the stalls being in one slope from the orchestra-rail to the back of the auditorium, and the side walls designed in a series of square columns leading up to the proscenium; in each bay between these, in the lower part of the wall, is a large exit door leading into a spacious foyer on each side of the house, from which there are ample exits to the gardens. The design of the interior of the house is on simple lines with ornament in a severe Classic taste, the whole being entirely devoid of that look of overdone pie-crust ornament which seems to be considered the necessary finish of the majority of theatres. MM. Heilmann and Littmann are the architects.

Public Works publishes an article by Mr. F. A. Cooper, Director of Public Works in Ceylon, on the new bridge over the Mahavelli Ganga, with illustrations which show the usual mistake in engineer's bridges, of trying to make them, as is supposed, ornamental. The old satin-wood bridge, with curved wooden girders and superstructure carried on nearly plain stone piers, was a thoroughly picturesque structure. The new one, which has arched steel girders with vertical ties in the spandrels, carried on stone piers, might have been almost equally so—the steelwork is simple and in good taste—if the designer would only have left the masonry piers with plain set-offs, as in the old bridge. But no: he must put some absurd and unmeaning turret features, with bad detail, on the faces of the piers, thereby completely spoiling his own work.

The *Antiquary* contains an interesting account of a visit (under some difficulties as to landing from the steamer) to the island of Tiree in the Hebrides, with sketches of two of its small ruined churches. Sir E. Brabrook concludes his essay on "The Progress of Antiquarian Research up to and in the XIXth Century," and the Vicar of Milton Abbey contributes some notes on the stained glass in that church.

The *Contemporary* contains a very able article by Mr. March Phillipps on "The Arab in Architecture," tracing out the connexion between Arab character and Arab

architecture. We have not space to quote any of it, but we recommend students of architectural history in its relation to social and political history to read the article; they will find some new ideas in it.

The *Fortnightly* contains an article by Mr. L. Higgin on "Visigothic Art," another article dealing with the relation between history and architecture, which is worth reading. The following passage is of interest:—

"Of Visigothic architecture, although some contemporary descriptions of it exist, so little has been known, owing to the wholesale destruction of buildings by the devastating Moor, that even till quite recent days it was thought that no remains of any moment existed to exemplify Visigothic art. Even Spanish architects and historians were unaware that a little Basilica, built by Recesvinto in A.D. 661, is still standing, almost intact and in daily use, and, what is still more remarkable, that it shows in its construction that the horseshoe arch and geometrical ornament formed by intersecting circles were elements of Visigothic architecture, and that they were merely copied by the Arabs when they began to build edifices of any importance more than a hundred years later."

In the same number is a most interesting article by Mr. E. V. Heward on "The Realms of Saturn," giving a short history of the progress of discovery about this planet from pre-telescopic times down to the present day.

In the *Monthly Review* Mr. A. P. Nicholson writes, under the title "Vanishing London," an eloquent plea for the preservation of the old buildings of London. He goes a little too far sometimes, as in lamenting the loss of Wych-street and Holywell-street, which were not worth keeping to stand in the way of a great public improvement; but he is quite right about the churches; and we entirely agree that if one of Wren's churches must necessarily be removed, at least the tower should be left, as part of the architectural scenery of Wren's London. Mr. Nicholson remarks truly that while in earlier years a colourable excuse was given for demolition—as that a church must go in order that the approach to London Bridge might be widened, "to-day no valid excuse is offered; such is the greed of commerce that a church in which are enshrined the customs, sentiments, and traditions of a people, must give place to a warehouse or a brewery."

The *Century* contains an unusual number of articles which come within the field of interest of our readers: an article on Laon Cathedral by Mrs. Pennell, accompanied of course by a number of beautiful sketches by Mr. Pennell; an article by Mr. Otto Bacher on "Stories of Whistler," which it is needless to say is good reading—whatever Whistler was or was not, at all events he was never dull; and an article by Mr. G. M. Stratton on "Railway Disasters at Night; the psychological need of revising the signals," in which we are glad to see that the author recognises that the accidents occurring on American railways "have become a national disgrace"; if he persuade the United States Government to take the same view, and prosecute railway managers and employees for manslaughter, some improvement may be brought about. It is a question only of night signalling, however; some of the most scandalous of these accidents have happened in broad daylight; and we should suggest that what is wanted is not merely revision of signalling appliances, but some better recognition on the part of American railway constructors and railway officials of their responsibility to the travelling public. "Ballooning by Moonlight," a narrative of a woman's trip over the Apennines, is also of interest at a time when ballooning is obviously about to be more and more followed as a pastime for the wealthy.

Harper contains an illustrated article on the new mural decorations in the Carnegie Institute at Pittsburg, described as being the largest commission for mural decoration ever received by a single painter in the United States. Mr. J. W. Alexander, the artist, seems (as far as one can judge from black and white illustrations) to know what to do with mural decoration; he has succeeded in indicating pictorially the industries of Pittsburg, in a manner at once intelligible and decorative, without descending to merely realistic pictures. The working figures are half seen as in a vision, partly veiled by mist, in such a manner as to render them indications and suggestions rather than representations; there is something rather novel in this treatment as applied to modern subjects, though it has often been applied to classical and allegorical subjects.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

II.—HOUSES AT CHISLEHURST.

THE second summer visit was held at Chislehurst on Saturday, 11th inst., when a limited party of members of the Architectural Association inspected a number of houses designed or enlarged by Mr. E. J. May. The district is rich in excellent examples of the best modern British domestic architecture, and the actual houses selected for the occasion made a thoroughly enjoyable and instructive afternoon. The chief characteristics of the work are the simplicity of plan and general design combined with a thoughtful and appropriate use of material. Bricks in varied tints, together with roofing tiles, is the prevalent combination, and it is the interesting development of this theme which Mr. May has so successfully achieved.

"Roycroft," the first house visited, has a well-considered plan, from which arises a house in every way fitted to the fine surroundings. Brindle brick walling, mixed with red bricks and a sparing use of stone dressings, rough cast gables, and tiled roofs are the materials employed. Special interest attaches to the ornamental leadwork of the bays, internal plasterwork, and mantelpieces.

At "The Cottage" Mr. May has produced some charming alterations and additions, and has laid out a pleasing formal garden. The latter mainly consists of a sunk lawn with grass walks and a lily pond enclosed with low brick walls and approached by several flights of brick steps. The general fall in the lines of the garden is an effective as well as useful feature. Mention must be made of the valuable collection of pictures by old masters which the house contains.

An interesting point in the arrangement of the plan of "Bretanely" is the series of communicating doors in all the reception-rooms, which lends itself to the entertainment of guests. The use of oak, the varied-coloured bricks, and massive chimneys contribute in large measure to the picturesque result.

A gardener's cottage, quite different in treatment from the other subjects, drew the attention and admiration of the visitors. The "dinging" of the external walls, the overhanging gable, and the half-timber work are here the principal parts.

The lych-gate of the village church was next visited. This is an oak-framed structure, roofed with oak shingles, and stands upon walls of Kentish rag and Doulting stone. The framing of the timber and the selected natural lines in the braces and other parts are most happily considered. A very interesting paving is introduced, in which York and Blue Pennant stone and granite are nicely distributed. The stains caused by the rain dropping from the oak shingles has caused considerable disfigurement of the work.

The last and not least attractive subject was Mr. May's own house, an example in every way typical of this architect's distinctive work.

ARCHITECTS AND THE WORKMEN'S COMPENSATION ACT:

COUNSEL'S OPINION.

THE following is taken from the Supplement sent out with the last issue of the Royal Institute of British Architects' *Journal*:—

As stated in the Annual Report of the Council, questions regarding the Workmen's Compensation Act on various points in which architects are likely to be affected have been submitted by the Council to Mr. Alfred Henry Ruegg, K.C. The learned counsel has given his opinion as follows:—

OPINION.

The following questions have been submitted to me under the Workmen's Compensation Act, 1906:—

1. Under the Act will the client or building owner be responsible or actionable for accident or damage that may happen to the clerk of works (*a*) if paid directly by him, or (*b*) if paid by the architect, the latter being in this case virtually the agent for the client?

I am of opinion that the client or building owner will be responsible or actionable for accident or damage that may happen to the clerk of the works, whether he be paid directly by the client or building owner, or by the architect as agent for the client or building owner. If employed and paid directly by the building owner no question can arise. He is clearly the servant of the building owner.

If paid by the architect—as I understand he is generally selected by the architect and conforms to his orders—care must be taken to make it quite clear that the architect is only the agent of the building owner.

To this end I should advise that a small printed form should be drawn up and adopted by the architects of the Institute to the effect that they engage "A. B." as clerk of the works on the buildings as agent for and on behalf of "C. D.," the building owner. The form should also contain a clause that "A. B." agrees to serve the building owner for the consideration set forth, and to obey the orders and directions given by the architect on behalf of the building owner.

I understand that in all cases the money comes from the building owner, and is never paid by the architect out of his commission.

2. Is the architect liable for damage or accident that may happen to his assistant when employed either in his office or superintending works of buildings in progress?

I am of opinion that the architect is liable for damage or accident that may happen to his assistant either when employed in his office or when superintending works of buildings in progress.

The assistant, whether himself an architect or not, is, I understand, a permanent servant of the architect, employed and paid by him, and under his sole control.

In each of the above cases it is necessary that the accident should arise out of and in the course of the employment, and that it should not (except where the injury results in death or serious and permanent disablement) be attributable to the serious and wilful misconduct of the injured person himself. (Sect. 1.)

It is also necessary (except where the employment can be described as manual labour) that the remuneration should not exceed 250*l.* a year. (Sect. 13.)

3. What is the position occupied by architests under the Workmen's Compensation Act, 1906, with respect to their pupils, articled to them by indenture in the form used by the Royal Institute of British Architects?

I am of opinion that a pupil so articled is a workman within the meaning of the Act; and that the architect to whom he is bound is his employer, and consequently liable as hereafter stated to pay compensation to the pupil or his dependants in case of injury or death arising from accident happening in the course of his employment, and arising out of his employment.

The relation of master and servant, or employer and workman, arises out of a contract of service. Apart from the express covenant in the articles of pupilage, a contract of apprenticeship is a contract of service, and of itself establishes the relation of master and servant.

An apprentice receiving no salary is, in my opinion, not entitled to weekly compensation under the first schedule (1) (b) of the Act, for the compensation is based upon the "earnings," and cannot exceed 50 per cent. of such earnings. In case of death also, when no salary has been paid, I think no compensation becomes payable, for the claim of the dependants must be founded upon dependency, either total or partial, on the deceased workman's "earnings" at the time of the death—schedule 1 (1) (a). Where a small salary is paid by the architect, I think the pupil would be entitled to receive as weekly compensation a sum not exceeding 50 per cent. of whatever such salary, when computed into weekly payments, amounts to.

If the injury results in death, and the pupil who is receiving a salary leaves dependants wholly dependent on his earnings at the time of death, the dependants would become entitled to a sum equal to the earnings of the pupil for the three years preceding the death, if he has been so long employed, with a minimum of 150*l.* If the pupil had not been employed for three years, then the sum would be 156 times his average weekly earnings during the period of his

actual employment as a wage-earning workman.

In case of death, where the dependants are not wholly dependent, such a sum, not exceeding the above amounts, as an arbitrator might think reasonable.

I must point out that if the pupil is under twenty-one years of age at the date of the injury, and his average earnings are less than 20s. a week, he may be awarded 100 per cent., instead of 50 per cent. of such earnings, in case of incapacity, but not in any case exceeding 10s. a week—schedule 1 (1) (b) (c)—and where, in such a case, the amount of compensation is reviewed after twelve months, the compensation may be increased to 50 per cent. of the weekly earnings which the workman would probably have been earning at the time of the review, if he had not been injured—schedule 1 (16).

4. What is the liability (if any) of the building owner towards the architect employed by him?

I am of opinion that (except in the unusual case of an architect in the permanent employment of a person, or public body, who has contracted to serve such person or public body and to perform his duties under their control, and who receives less than 250*l.* a year), the architect is not a servant or workman of the building owner, and such building owner incurs no liability to him under the Workmen's Compensation Act, 1906. The architect who undertakes to superintend building operations for a commission does not enter into the service of the building owner, or contract to serve him. He is in law a contractor, and, so long as he carries out the terms of his contract, is quite independent of any control on the part of any building owner.

THE SURVEYORS' INSTITUTION:

THE PREVENTION OF CORRUPTION ACT, 1906.

AN ordinary general meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, S.W., Mr. George Langridge, President, in the chair, when Mr. Maurice L. Gwyer, Barrister-at-Law, read a paper on "The Prevention of Corruption Act, 1906." It was a piece of legislation, he said, the object of which deserved nothing but praise, whatever might be its practical results. Its appearance on the Statute-book was symptomatic, not, as many might say, of the decadence of our commercial morality, but rather, he thought, of its virility. It was a sign that the community was at last thoroughly awake to the mischief at which it aimed, and its passing was a sure indication of a very strong desire to render innocuous as far as possible a canker which had been too long left untouched by the criminal law. But prosecutions under the Act could only take place by permission of the Attorney-General, which fact was not likely to increase the zeal of the private prosecutor, and it did not seem likely, at present at any rate, that the Act would increase the congestion of legal business.

To describe the Act as one had heard it described, as an Act for the abolition of secret commissions, was to put the case in a nutshell, but the definition was neither strictly accurate nor very explanatory. Secret commissions were not abolished, for the simple reason that they had never at any time been recognised by the English law, which had dealt severely with them when they had come to light. The difficulty had always been that the penalties involved had been comparatively insignificant, and this had brought about a lax state of public opinion in many walks of life, which had affected people whose honesty, apart from this, would not be in dispute. There could be no doubt that to many the Act had come as a rude surprise. There was, of course, the inferior type of commercial agent who regarded secret profits as part of the natural perquisites of his business, but there were others who in all innocence had acquiesced in what had appeared to them a common practice, without bringing their minds to bear upon the question whether it was a proper one or not, and had been astonished, and perhaps alarmed, to find that they had, as it were, with their eyes shut, brought themselves within the net of the criminal law. It was to these that the new Act presented questions of difficulty. A bribe which was openly a bribe was as easy to recognise now as it ever was; and those who had never been accustomed to regard the giving or taking of one otherwise than as a dishonest act were not likely to regard it as any the more so because it was now a criminal offence. But where a secret profit or commission put on, so to speak, sheep's clothing, it was difficult to penetrate its disguise, while the fact that it was hallowed by custom or usage would prove no defence when the offender was called on to plead.

Having shortly described the Act, the author said that the questions of the greatest interest to business men in connexion with this new legislation were:—Does the new Act impose duties and obligations additional to those which every honourable man has always regarded as binding upon him? Does it alter the law with regard to those who give or accept the advantages technically known as secret or illegal profits and commissions? Does it, in other words, impose a criminal liability where formerly there was only a civil one?

He took it that the main principles of the law, as it existed before the Act, and, indeed, still exists side by side with it, with regard to an agent's profits and commissions were well-known, but for purposes of comparison he briefly set them forth.

Having quoted the words of the late Lord Bowen in the case of the Boston Deep Sea Fishing Company *v.* Ansell, he said it would be seen that these words covered a great deal more than the case of the vulgar bribe; the agent was not allowed to make a profit in any way, direct or indirect—in other words, he must account to his employer for everything which he received in the course of his employment and by reason of that employment. To take what he supposed was as common an instance as any—he meant the so-called trade discounts and rebates which are so often met with. He employed someone else to purchase goods or to do a piece of work for him, and his agent purchased the goods and was allowed a discount on the price by the seller. He was not allowed to keep this discount, but must account to the employer for it. It might well be that had the employer dealt with the seller direct he would not have been allowed the discount at all, but that was no reason why his agent should put it into his own pocket when he was already remunerated by the employer for what he had done.

The general principle was perfectly clear and intelligible. The remedy which hitherto the principal had had when such a state of things came to his notice was threefold. He could, of course, terminate his agent's employment at once, on the ground that he had abused the trust imposed in him; he could make his agent account for the secret profits and discounts which he received, and could sue him for them; and if he could show that beyond this he had actually suffered damage by what had occurred he could sue the agent and the third party who had tempted him jointly for their fraud, and could recover damages. It would be observed that hitherto it had been the agent who had been the primary sufferer when his misdeeds had come to light; it was he who could be dismissed, and it was he who could be made to account; but the third party, who was as often as not the real author of the mischief, went scot-free unless the principal could show that he had actually been damnified, when, of course, the third party was liable for fraud. And it was here that the new Act made so great an advance, because the third party was now made liable so far as the criminal law was concerned equally with the agent.

The new legislation applied, of course, to every kind of trade and profession, but he thought that so far as the surveyor's profession was concerned the points which were likely to arise were not very numerous. Take, for instance, the case of estate agents and surveyors who were employed, among their other duties, to effect fire insurances on property. In very many cases the agent or surveyor would be the recognised agent of some insurance office, and everyone knew that the offices were accustomed to give a commission for the introduction of business. In a case such as this it would surely be a straining of the Act to say that anything was done which could be construed as a criminal offence. It would be a case where it was the practice for the agent to be remunerated in part by the third party, unless, of course, the principal agrees with the agent to effect the fire insurance for a specified reward.

Or, again, take the case of a surveyor (and this, of course, applied to architects, auctioneers, and the like also) who had to have a certain amount of printing or lithography done for his client. If he employed the printer or lithographer on behalf of his client, so as to make his client primarily responsible for payment of the bill, it would not, the author thought, be questioned that he would have to account for discounts, if any, which were allowed him. But supposing that he employed his own lithographer or printer. The author believed that this was a very common and convenient practice, and that, apart altogether from trade discounts, it was very usual for the lithographer, or as the case might be, to allow discount for cash. It seemed to him that if the surveyor paid the lithographer at regular intervals from his own pocket, and might have to wait months before he received his own fees from the client, no possible exception could be taken to such a discount. In such a case the discount really represented interest paid to the surveyor for the use of his money. He had had his attention drawn to the case of the London School Board *v.* Northcroft, in which Mr. Justice A. L. Smith dealt with this very point. He said in that case that where a surveyor employed his own lithographer and paid him himself, subject to the discount for cash, he was justified in retaining the discount, because it was clearly proved that this was the "usual and proper" way of doing the business, and he (the author) might point out that in that case, the plaintiffs having been proved to have known of and acquiesced in the fact that the surveyor was employing his own lithographer, the judge seemed to lay stress on the recognised custom of allowing the discount for cash, which, in his view, bound the plaintiffs so soon as the fact was established that it was with their approval that the lithographer was employed not by them, but by the surveyor himself. This seemed agreeable to common sense, and he would be a bold man who advanced the opinion that the new Act applied at all. But the discount here was one for cash and not a trade discount, properly so called.

A third point on which he had known questions arise relates to quantity surveyors. It had been asked whether an architect who took out his own quantities was entitled to invite contractors to allow 2½ per cent. for quantities in making out their tenders. Before the Royal Institute of British Architects recommended that architects should only take out their own quantities with the consent of the employer, and should look to him for payment, the practice of charging such commission to the contractor was, he believed, not uncommon, and attempts were made in the Courts, though unsuccessfully, to set it up as a regular custom. He should not have thought that the custom still existed, but if it did it seemed one more honoured in the breach than in the observance, and though perhaps not "corrupt" within the meaning of the Act, at any rate undesirable, because the architect was being paid by someone else besides his employer, thus making an indirect profit in the course of his employment.

Nor, he thought, would it be doubted that no allowance by the quantity surveyor to the architect could be justified even on general principles, apart from the Act, and he could not conceive that cases of it could often occur. He was asked not long ago whether, if an architect was allowed a commission for taking out quantities, he would be entitled to share it with the quantity surveyor. Clearly the answer would be "No," if the commission as paid by the employer was intended to represent the quantity surveyor's fee and no mention of the division were made. He was not so certain, however, if it were the case that the architect had been allowed, say, 2½ per cent. for the purpose of getting the quantity surveying done. It might then be said that there was no reason why, in the language of the Bar, he should not "devil" it out if he liked; but the question was probably as much one of professional ethics as of law; and he took it that no harm would be done by disclosing the fact to the employer and that this would be the usual practice.

He thought it was scarcely necessary to refer to other examples, as to the propriety of which doubts could scarcely arise at all. The best proof that one could have of the fact that they were generally and rightly discountenanced was to be found in the extremely rare occasions on which they came

to light. It had been said that there were solicitors to be found willing to receive a part of the commission payable to the auctioneers whom they employed on behalf of their clients; but it was improbable that the solicitors or auctioneers, if any, who lent themselves to such a practice were likely to be men standing high in the opinion of their professional brethren. For the same reason the case (if such ever arose) of architects or surveyors who were prepared to take a percentage from builders, or contractors, or others whom they employed for other people had only to be mentioned to be dismissed. There were no professions, he supposed, which could wholly escape isolated examples of wrong-doing; and the rarity of this particular offence only damned it the more.

He thought that these were examples of the points on which questions might arise. Because a practice was undesirable, it did not follow necessarily that it was what the law called "corrupt"; but those whose intentions were nothing but honest were the more likely to wish to keep on the safe side. It was in the world of commerce strictly so called that the more complicated problems in connexion with the subject were to be found. It must be regarded as an advantage for those present that they, like himself, belonged to a profession where the method of fixing remuneration was definite and certain, and where the possibilities of doing, even in ignorance, what the law forbade, were fortunately few and far between, because they were probably the less likely to be troubled by twinges of conscience in cases of doubt. And in all such cases there was the easiest of solutions; one had only to inform the client of all the facts and the difficulty was solved. If it was brought to his notice and he raised no objection he must be taken to have acquiesced.

A discussion followed, and a hearty vote of thanks was accorded to the author.

FIRE TEST OF A TUBULAR CONCRETE-STEEL FLOOR.

PARTICULARS will be found in Report No. 119, issued by the British Fire Prevention Committee of the test conducted upon a "Herbst" system concrete-steel floor, one special feature of which is that it can be erected without centring of any kind, providing the span is within moderate limits. This point is one of so much importance that we think it well to give a brief description of the manner in which this floor is built. It consists essentially of three elements:—(1) A series of thin ⊥-shaped ribs of concrete, each reinforced by a flat or corrugated steel bar; (2) a series of tubular plain concrete blocks square outside with a rebate on each side and having a cylindrical hole through the middle; and (3) a filling of plain concrete deposited above and between the ribs and hollow blocks. The ribs and tubes can be made on the site of the work to be executed, the former in timber moulds and the latter in a machine similar to a pipe press. In constructing a floor the ribs are first placed at short intervals apart upon the supporting walls or upon steel girders so as to form a series of spaces partly closed at the bottom by the projecting flanges of the ⊥-shaped ribs. The spacing of the ribs is governed by the width of the tubular blocks, which are simply dropped into position, and when two or three rows have been laid a platform is thereby formed upon which the men can work and further supplies of blocks can be stored. When all the blocks have been placed in position, the floor is capable of sustaining any loads such as are likely to be due to the weight of workmen and materials. The next operations are to fill with semi-fluid concrete the spaces between the ribs and the tubular blocks, and then to deposit more concrete to the required thickness. The floor surface can be finished as desired, and the ceiling can be plastered in the ordinary manner. This simple method of construction has been followed to a considerable extent in Germany, and we gather from the Report that the patentee is represented in this country by Mr. H. C. Werner, of Westminster.

The floor actually tested by the British Fire Prevention Committee was 11 in. thick without reckoning the plaster on the under side, the clear span being 10 ft. 3 in. in the direction of the ribs, and 22 ft. 5 in. in the other direction. It was subjected to a distributed load of 280 lb. per square foot, and to the maximum temperature of 2,080 deg. Fahr. Soon after the commencement of the test, the setting coat of plaster fell, and when the fire had been in operation for three and three-quarter hours four transverse cracks were observed, two outside and two inside, the maximum deflection being ½ in. The application of water produced no apparent effect beyond causing the fall of some of the plaster. After removal of the load six transverse cracks were observed in the upper surface of the floor, and some small cracks on the under surface. Nevertheless, neither fire nor water had been able to penetrate through the construction, the maximum permanent deflection of which was $\frac{7}{16}$ in. at the middle of the span.

These results certainly justify the "Full Protection" certificate awarded by the Committee.

WATER CHARGES BILL.

THE proceedings in connexion with the Metropolitan Water Board Bill before a Joint Parliamentary Committee were continued on Thursday (May 9), when Mr. Henriques resumed his cross-examination of Mr. Pilling, on behalf of the London Master Builders' Association. The witness stated that the builder's yard would not be rated for a supply of water, and Clause 13 of the Bill said that a water supply was only to be used upon premises upon the ratable value of which the person was charged in respect of a domestic service. This would place the builder in an unfortunate position, as his yard would not be premises which were rated for a domestic supply. If the builder would be content to be rated upon his yard that would be removed. He admitted the building trade was a very important one both as regards the number of people employed and the housing question.

Mr. Henriques: The object of your Bill is uniformity. Is it not somewhat difficult to justify if a builder carrying on his trade should be obliged to pay one price for water in his yard, and another price where he was building or repairing a house in another street, and both prices different from the price charged to another builder?

Mr. Pilling: The building trade is so entirely different from ordinary trades. We have done what we could to secure uniformity, but one must consider the different methods of charging builders in various districts. In one district they pay by meter on the amount of water consumed, in another by a certain percentage on the cost of the building, and in another district the number of square feet in the floor area is calculated and a charge made on that basis. We have endeavoured to sweep away all these methods, and come back to the one method of 7s. per cent. on the cost of the building.

Mr. Henriques: You know that a great part of the cost of a building is not incurred on the actual site, such as the cutting of joists, making window-frames, and ironwork, etc.

Witness: Yes, but if you take all the iron, etc., out of the cost of the work in order to maintain the income you would have to charge more than the 7s. per cent.

Mr. Henriques: I suggest it should be done by charging a meter rate. Did not the Chairman of the Committee that was good enough to receive a deputation from our Association say the Board did not wish to make a profit out of the building trade.

Witness: I do not recollect. Continuing, he said the cost of water was 8d., and they were prepared to supply it by meter at 1s. A supply by meter would tend to prevent waste. There was an incentive for the builder to be more careful if he knew he was paying for every gallon he used. The Board wished to encourage economy in the use of water. They could not secure absolute uniformity in the matter of a building supply as they could in a domestic supply.

Mr. Henriques: Why not?

Witness: Because in a building supply you must make a charge according to the amount consumed, which is not the case in a domestic supply.

Mr. Henriques: That is exactly my point. If we have to pay on the quantity consumed how can the quantity consumed be better calculated than by a meter?

Witness: You would have to adjust the meter charge in order to produce the revenue.

Mr. Henriques: If the builder is willing to have the charge adjusted, would the Board be willing to supply the meter?

Witness: If the builder be willing to face the cost of laying down the meter. He would find the cost of laying down the meter would often be out of all proportion to the water passing through it.

Mr. Henriques: I do not suggest it should be done in cases where the cost of the job is less than 1,000*l.*

Witness: We have already done it in some large jobs.

In re-examination, witness said the Board could not put a meter down in a field anywhere. They required it to be placed in a proper pit and safe from injury. This cost 4*l.* or 5*l.* The proposal of the Board was that persons should pay for the water not according to the amount used, but according to the purpose for which it was used.

Mr. F. E. Harris, Comptroller to the Board, said the annual value of the premises supplied by the Board for domestic purposes in 1905 was 36,222,993*l.*, and a percentage of 5 per cent. on that would produce a gross revenue of 1,811,149*l.*, as compared with the Board's actual income for that year of 1,832,772*l.*, or a loss of 21,623*l.* The Board, after careful consideration, adopted a 5 per cent. scale, because it interfered less with the small consumers, and caused less disturbance generally than any other scale.

Cross-examined by Mr. Balfour Brown, on behalf of the Middlesex County Council, the witness said if a scheme had been promulgated for collecting the Board's water rate in connexion with the poor rate, or some rate, it might have resulted in a considerable economy, but certainly not sufficient to prevent an increase in the charge of water to any consumers. The collection of their revenue involved a cost of between 40,000*l.* and 50,000*l.* Offers had not been submitted to the Board by local authorities to collect their rates for 2½ per cent., which would only mean 14,000*l.* or 15,000*l.* If the Bill became law the Board would have the option of placing the collection of their rates with the local authorities.

On Monday the proceedings were continued, when Mr. Wedderburn, K.C., on behalf of the Associated Manufacturers' Committee, continued his cross-examination of Mr. E. F. Harris, the Comptroller to the Board. The witness stated that since the undertakings had been taken over the Board's income had been increasing. The Board's expenditure was at the present time somewhat extraordinary, owing to the number of pensions that had to be paid to officials. He did not think the Board had consulted any of the manufacturers with reference to the charges. He believed practically all the water supplied, whether for trade or domestic purposes, was filtered water. To a trader filtered water was often a luxury. Because the water could not be separated the trader had to pay for it at an increased price, although filtered water was not necessary to him.

Mr. Wedderburn: Is not that a reason why you should not increase the cost of trade water more than is necessary?

Witness: I don't think it has been increased more than is needful.

Mr. Henriques cross-examined the witness on behalf of the Builders' Association, and in reply to questions Mr. Harris said he was aware the Water Board passed a resolution on March 18 that after April the charge for builders should be 7s. per cent., but he did not know how that figure was arrived at.

Mr. Henriques: Is any gentleman coming who can give us the information?

Witness: I don't know. I had nothing to do with fixing the charges for builders.

Mr. Henriques: Could you tell us what is meant by an "unusual amount of decorative and other ornamental work"?

Witness: I personally cannot. The charges for builders are regulated in the supervisor's department, and not my own.

Mr. Henriques: Perhaps you can tell us what is considered an unusual amount of decorative work in the supervisor's department. Is steel building or marble building so considered?

Witness: I prefer to speak of my own functions.

Mr. Henriques: You will agree that it is most essential for builders that there should be uniformity in the charges?

Witness: You are putting to me the

builders' case. I know nothing whatever about it.

Mr. Henriques: Has it been considered?

Witness: Yes. It has often been considered by the Assessment Committee.

Mr. Henriques: Can you tell us how much water is supplied by meter to builders, and how many building applications for water are received during a year?

Witness: I have no information at the moment with regard to the numbers. Continuing, he said he had no information to give as to the policy of the Board.

Mr. Henriques: Do you see any objection to supplying builders by meter as other traders are?

Witness: That is a question I am not prepared to answer. The supply to builders is the subject of consideration in another department in charge of an expert officer, who is thoroughly conversant with the ins and outs of the building trade. I don't pretend to be.

Mr. Henriques: From the point of view of revenue, if the builders are prepared to pay for the cost of installation and maintenance of meters, do you see any reason why they should not be supplied by meter?

Witness: I have no objection to anything the builders may do so long as they do not decrease my income.

In re-examination by Mr. Fitzgerald, the witness said that Clause 19 of the Bill gave the Board the right to make a higher rate in special cases for trade supply.

Mr. W. B. Bryan, Chief Engineer to the Board, was called for cross-examination, and in reply to questions by Mr. Wedderburn, K.C., on behalf of the Associated Manufacturers' Committee, he said that the East London Company could supply water for trade purposes at 6d. and make a profit.

Mr. Wedderburn: Then why cannot the Board do what the company did?

Witness: The East London Company had a scale in their Bill fixing the minimum price at 6d. and 9d. as a maximum, with an addition of 25 per cent. for high service.

Mr. Wedderburn: Is there any reason why, if the high service charge is not abrogated, the same scale should not profitably remain in the Bill?

Witness: That is a question I am not prepared to answer.

Mr. Courthope Munroe said this closed the case for the promoters, and

Mr. Wedderburn, K.C., then addressed the Committee on behalf of the Associated London Manufacturers' Committee, and said that it was annoying that such a Bill should have been deposited without a careful consideration of the interests of the traders. Had it been known that the Act of 1902 meant a heavy increase in the charge for water he doubted very much whether the Bill would have passed into law. The present Bill proposed to raise the statutory maximum price for trade purposes which had ruled in the business part of the area for over fifty-five years, and this solely to benefit one class of consumers at the expense of the other. The proposals were without precedent, without warrant, without necessity, and without use. He argued at considerable length in favour of a graduated rate of charge which would obviate any deficiency on the domestic supply, the meter-rent service, or the public service, but, on the contrary, would make them self-supporting, and therefore do away with the necessity of putting an additional charge of 50,000*l.* on the trade supply. The dead-level rate of the Board had nothing to support it beyond its brutal simplicity. It worked numerous hardships on many people and left the Board with a deficiency. He put in a set of tables showing the results of the Manufacturers' Committee's figures. The rates proposed by them were: For domestic supplies, 5 per cent. on ratable value not exceeding 30*l.*; 6 per cent. on ratable values from 31*l.* to 50*l.*; 5½ per cent. from 51*l.* to 200*l.*; 4½ per cent. from 201*l.* to 300*l.*; 4 per cent. from 301*l.* to 1,000*l.*; and 3½ over 1,000*l.* For trade supplies up to 50,000 gallons per quarter, 9d. per 1,000; 50,000 gallons to 100,000 gallons, 8d. per 1,000; 100,000 to 200,000 gallons, 7d. per 1,000; and over 200,000 gallons, 6d. per 1,000 gallons. For public supplies, 7d. per 1,000, and meter rents from 2s. per quarter to 1*l.* 5s. according to the size of the meter.

Mr. Edwin Tate, Chairman of the Associated London Manufacturers' Committee, and a director of Henry Tate & Sons, sugar refiners, said he had always paid 6d. per 1,000 gallons for water. An increase in the price of water would seriously handicap them. The charge for high service was an extra charge for extra service, and manufacturers were willing to pay.

Cross-examined by Mr. Munroe: If the Bill were passed the Board would have power to charge him 400*l.* a year more for his water.

Similar evidence was given by several other manufacturers.

Mr. G. R. Strachan, Engineer, said the Board could supply water for trade purposes at a profit for 6d. per 1,000 gallons.

Mr. Vesey Knox, K.C., on behalf of Ealing, Acton, and Chiswick, said there was no good reason why the present methods of charging should not go on, and he asked the Committee to reject the Bill on preamble.

When the proceedings were continued on Wednesday, Mr. Vesey Knox, K.C., resumed his address to the Committee on behalf of the Acton, Ealing, and Chiswick opponents. He said that the Board should exercise strict economy and reduce their charges for administration, then as the ratable value of London increased they would be able to abolish the extra charges which were awkward to collect. Referring to the clause in the Bill which makes it compulsory upon a trader to pay a rate for a domestic service before he was entitled to a trade supply, he said there had been in certain districts an absolute right to a supply for trade purposes. The Companies had carried on business for over fifty years and never asked to have this obligation removed, and yet the Board were seeking to get rid of it. The only reasons assigned for this were that a builder might demand a supply for vacant land, but the courts had held that the builder had no such right. Then it was suggested that a man who had some tennis-courts might want a supply to water the grass. He saw no objection to that, because it was not undesirable for public places of amusement to be provided in London.

Mr. Blennerhasset, K.C., addressed the Committee on behalf of the London County Council, and said the Council offered no objection to the main principles of the Bill. They were in favour of equalisation, but they offered the strongest possible objection to the alteration proposed in the Bill in respect of the basis to be charged upon. Their view was that the Bill was a Bill to provide for the adoption of a uniform scale of charge throughout the metropolis, and any alteration in the basis upon which that charge was to be levied was entirely foreign to and outside the scope of the Bill. The Council also contended that public bodies should not be supplied at a price less than the cost of the water to the Board as was proposed in the Bill. They also objected to the proposal in the Bill with reference to the trade supply, and contended that the obligation should be upon the Board to supply anyone who made a bona-fide application for a trade supply.

Mr. E. Harper, statistical officer to the London County Council, gave evidence with reference to the effect of the alteration proposed in the Bill of the basis of charge. He said the Council were of opinion that uniformity in the matter of trade supply should be sought by making it obligatory on the Board to give a supply for trade purposes to any bona-fide applicant.

Mr. Henriques addressed the Committee on behalf of the London Master Builders' Association, which, he said, consisted of the principal builders in London, who employed between 25,000 and 30,000 men. He asked the Committee to reject the Bill in order that it might be reintroduced with a scale of charges that was really uniform. The Builders' Association approached the Board about two years ago and laid their case before them, suggesting that in jobs under 1,000*l.* the charge should be calculated at the rate of 5s. per cent., and in cases exceeding 1,000*l.* the contractor should have the option of a supply by meter at the rates that have prevailed hitherto. The Board said they would take into consideration the Builders' memoranda, and the Chairman said the Board had no desire to make a profit out of the builders. On March 8 the Board passed a resolution fixing the price at 7s. per cent. The building trade was a very important trade in London. It was essential for the builder that there must be absolute certainty as to the cost of water and rapidity in ascertaining what that cost would be. If the builder did not know what the water would cost it made that question one huge gamble in their contracts. The builders asked for uniformity of charge throughout and cheapness as far as possible. The Bill failed, he submitted, in all these particulars. There was no uniformity inasmuch as the builder paid one price for his water in his yard and another for the water used in the street where he was building. For the supply in his yard he paid first a domestic rate and then he paid for it by meter. In addition much of the work done in a building was carried out in the yard; the water used for it was paid for on the contract for the job, and the water was really paid for three times over. By the resolution of March 18 the builders were put at the mercy of the local surveyors to determine what was an unusual amount of decorative work, and iron or steel work. This would lead to wrangles and delay, and delay was most detrimental to the building trade. He instanced the case of a Mr. Payne, who was building some houses on which the Board were charging him 6s. per house. After the resolution of March last they proposed to charge him 2*l.* 1s. 8d. He complained, and the charge was reduced. He complained again, and the price was reduced again. The average price was 5s. per cent. before the resolution was passed. He said the builder was perfectly willing to pay for the maintenance and installation of meters and to pay for a minimum supply of 25,000 gallons per quarter, and he could not see why the policy of the Board failed to countenance such a scheme. The policy of the Board appeared to be to protect the domestic supply at the expense of the trade supply. He contended that if a meter supply system was established it would mean a saving in water, as a trader supplied by meter would be very careful, but not having a meter supply the whole tendency would be to be careless as to the amount of water used by his workmen.

Mr. F. A. Dove, a builder of thirty years' standing, said the prices under the old companies varied from 2s. 6d. per cent., but the average price was 5s. per cent. He at present was supplied by meter in his yards at a price of 7d. per 1,000 gallons, with 25 per cent. extra for high pressure service. Builders had no objection to paying for the installation of meters, and, in fact, they desired it. Where the contract was less than 1,000*l.* they were content to pay the rate of 7s. per cent. as fixed by the Board. As emphasising the necessity for builders to know how much their water would cost, he instanced a case in which a firm had a job which would cost 8,400*l.*, of which 6,400*l.* would require practically no water. He allowed 15*l.* in his estimate, but the Board demanded 29*l.* He demurred, and eventually the claim was reduced to 24*l.* 17s. As he had men waiting to get on with the work, he paid the money demanded and thereby made a loss of 9*l.*

Mr. Wm. Shepherd, a builder of large experience, gave evidence corroborating that given by Mr. Dove.

Mr. Henriques said he had other witnesses, but as they would only repeat the evidence already given he should not call them.

Subsequently the case for Middlesex was gone into.

Mr. Jas. Bigwood, speaking on behalf of the Middlesex County Council, stated that of all the counties Middlesex was, except London, most interested in this matter. Under the Bill Middlesex would seriously be injured.

Mr. G. E. Eachus, Surveyor of the Edmonton District Council, followed, and gave evidence to the effect that in his opinion the Water Board had not complied with their statutory obligations inasmuch as they had reduced their charges in a large portion of the area without being able to meet their expenses except by robbing another portion. Under the Bill there would be increased charges upon Middlesex and London to make up for reduced rates in Essex, Kent, and Surrey. The only redeeming feature of the Bill was that it would benefit some of the poor in the East End of London, but against this it would increase the burdens in Edmonton, where 90 per cent. of the inhabitants were exceedingly poor. In his district the rates were 9s. 4d. in the *l.*, while in Kent and Surrey the rates were generally low.

Cross-examined by Hon. J. D. Fitzgerald—In a poor district where the rates were necessarily high increased burdens should not be imposed. The extra charge for water in

Edmonton might be only 1d. per week for small houses, but 1d. a week was as much to a poor man as 1*l*. per week would be to the Hon. Mr. Fitzgerald.

Mr. W. F. Payne, Clerk to the Edmonton Urban Council, gave similar testimony, and added that an increase in the charges would have a serious effect upon the florist industry, which was an important trade in the district.

Mr. Ernest Young, Treasurer to the Tottenham District Council, stated that the Bill would inflict an injury upon Tottenham equal to that it would do to Edmonton.

Mr. W. P. Harding, Clerk to the Wood Green Council, and Mr. Stanley Ball, Clerk to the Willesden District Council, spoke as to the effect of the Bill in increasing charges upon small properties.

Mr. H. T. Wakelam, Surveyor to the Middlesex County Council, said that in some parts of the area the rates were very high indeed, and to increase the water charges would be a serious thing, and would tend to drive the population away.

Sir Ralph Littler, addressing the Committee on behalf of the City Corporation, read the resolutions passed at a public meeting in reference to the Bill. He argued that the hardships inflicted by the measure would be greater than the admitted evils it was framed to meet. At present the City was paying for water enormously in excess of any other part of the metropolis. One would have imagined that one of the first duties of the Board would have been to have ascertained what quantity of water was consumed in the City. This had not been done, but it was known that the amount consumed was enormously less than in any other part of the metropolis, while the charges were enormously in excess of those paid in any other area under the control of the Board.

Sir Felix Schuster, Governor of the Union of London and Smiths Bank, said their water bill came to 900*l*. a year, which was equal to about 2½ per cent. on their ratable value. If the rate were raised to 5 per cent. they would have to pay double the amount they now paid. The present sum worked out at 35*l*. per head of the employees. The consumption was about 1,680,000 gallons per year, and the price which they paid was equal to 26 million gallons at 8d. per gallon, so they calculated that the Water Board made a profit on their account of 824*l*. Cross-examined by Mr. Fitzgerald, witness said the cost of water at present was excessive.

Sir Thomas Vesey Strong, an Alderman of the City Corporation, and a member of the Water Board, said the Bill would burden those who already paid more than sufficient for the water consumed.

Mr. Samuel Wood, a chartered accountant, said he had examined the tables put in by the promoters, and found from the income that the charge for the whole area worked out at 8d. per 1,000, but in the City it worked out at 10d. per 1,000. He put in a table showing the effect of the Board's proposal on a number of business premises whose ratable value was over 700,000*l*. At present these premises paid 18,000*l*., and under the Bill they would have to pay over 36,000*l*.

Mr. Herbert Fuller, a rating surveyor, said he had made an estimate of the amount of water supplied to the City of London, based on the population as given in the Medical Officer's report. He estimated that 1,970 million gallons were used, of which 798,278 gallons were domestic service, and cost 117,649*l*., or 35·37d. per head; and 1,172 millions of gallons were trade supply, and cost 39,205*l*., or 8·02d. per head.

Sir Alexander Binney, C.E., said it was usual throughout the whole of England for a distinction to be made in the rate of charge for water used on residential or non-residential premises.

Mr. Hutchinson then opened the case for the owners of City properties, and called

Mr. Walker, Secretary of the City of London Real Property Company. Their City properties had a total ratable value of 127,000*l*., and paid 2,350*l*., and under the Bill they might have to pay 6,363*l*. He put in a number of tables which showed that the City consumer at present paid 11½ times the price for water a domestic consumer outside the City paid, and under the Bill he would have to pay 27 times as much.

Mr. C. E. Corbet, M.P., Chairman of the Associated Owners of City Properties, gave evidence as to the effect the proposals of the Bill would have on property managed by himself.

Mr. Hutchinson then addressed the Committee on behalf of the Direct Short Sea Traders' Association.

Mr. Stenning, a surveyor, explained the difference in the method of arriving at the ratable value of wharves, warehouses, and domestic dwellings.

The Chairman asked why wharves should not be treated the same as traders.

Mr. Fitzgerald said that was a question he could not answer.

Mr. White (a member of the Committee) pointed out that if the Bill were passed the Board would have power to charge the wharves for a domestic supply.

Mr. Parsons, Secretary of Nicholas Wharf, Ltd., said they were paying at present 28*l*. for their water, and under the Bill they would pay 288*l*.

Mr. James Humphrey, one of the proprietors of Hayes Wharves, said their present rate was 148*l*. a year, and under the Bill they would pay 1,500*l*.

Mr. Stanley Machin, Deputy Chairman of the Council of the Chamber of Commerce, said the Chamber thought the price for trade purposes should be reduced rather than increased. They objected to any discretionary power as to the price of the water for trade supply being given to the Board.

Mr. W. Martin, Comptroller of Estates to the Prudential Assurance Company, said they at present paid 688*l*. a year for water, and if the Bill were passed it would be 1,367*l*. Under the scale proposed by the Chamber of Commerce they would only have to pay 35*l*. increase on the present rate. If the Bill were passed they would in all probability sink an artesian well on their property.

THE ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

THE Association of Municipal and County Engineers held its first district meeting of the present season at Slough on Saturday, May 11, when there was a large gathering of members and visitors. The meeting was arranged by the Home Counties district, and the Engineers to the Slough District Council (Mr. W. White Cooper) and to the Eton Rural Council (Mr. A. Gladwell) both contributed papers which produced a very interesting discussion on road maintenance as affected by fast motor traffic. The business meeting was held in the Leopold Institute, Slough, where the members were received by the Chairmen of the Slough District Council, the Eton Rural Council, and the Buckinghamshire County Council.

Mr. J. Patten Barber, Islington, President, was in the chair, and there were present:—Messrs. C. F. Wike (Sheffield), C. Jones (Ealing), W. Weaver (Kensington), J. Rush Dixon (Woolwich), E. Purnell Hooley (Nottingham), T. W. A. Hayward (Battersea), R. J. Thomas (Aylesbury), A. T. Wakeham (Westminster), J. A. Angell (Beckenham), E. J. Barrett (Staines), H. W. Barker (Walmer), R. Brown (Southall), J. Baker (Slough), T. Caink (Worcester), E. R. Capon (Epsom), S. H. Chambers (Hampton), F. T. Clayton (Reigate), A. H. Campbell (East Ham), W. White Cooper (Slough), G. E. Carter (Winchester), N. H. Dawson (Banbury), P. Dodd Putney), W. Farrington (Woodford Green), A. Gladwell (Eton), C. C. Gray (Hayes), S. G. Gamble (London), T. C. Golder (Deal), F. Harris (Tonbridge Rural), W. E. Hawke (Dover), W. Hanson (Wantage), J. E. Hargreaves (Farnborough), M. Hainsworth (Teddington), C. J. Jenkin (Finchley), R. H. Jeffs (Cheshunt), Loveday (Stoke Newington), C. W. Marks (Wokingham), G. W. Manning (Staines Rural), J. P. Norrington (Herne Hill), J. H. Norris (Godalming), F. H. Phipps (Basingstoke), T. J. Rushbrooke (High Wycombe), J. E. Smales (Leatherhead), N. Scorgie (Hackney), C. Chambers Smith (Sutton), W. Howard Smith (Westminster), T. B. Simmons (New Maldon), J. F. Stow (Uxbridge Rural), E. A. Strickland (Windsor), J. B. Williams (Daventry), H. Walker (Wealdstone), Robert R. C. Wynne (London), J. A. Webb (Stanmore), and C. E. Winter (Hampstead).

Mr. F. Farr, J.P., Chairman of the Slough Urban District Council, heartily welcomed the members of the Association. He referred to the very excellent results obtained by their Surveyor (Mr. Cooper) with the Meldrum furnaces, by which the refuse was converted into concrete channels and flags for the paving of the streets.

Mr. J. Hartopp-Nash, Chairman of the Eton Rural District Council, also joined in the welcome to the Association. Had their meeting been sixty years ago Mr. Gladwell would no doubt have arranged for them to visit what was then a unique object in that district; he referred to the bridge over the river at Datchett, which was afterwards replaced by the Victoria bridge. That bridge, owing to a dispute between the Counties of Berks and Bucks, was built on the Berkshire side of iron and on the Bucks side of wood, and it was not united. Happily they had no experience of such county disagreements—at least, if they had the disagreements they were not flaunted in the eyes of the ratepayers.

Mr. Tonman Moseley, Chairman of the Bucks County Council, said although there had been improvements in the roads and sanitation since the passing of the Local Government Acts there was one thing still wanted—that was money. However able and intelligent the local engineer, it was impossible to bring about the improvements that were necessary unless it was possible to obtain the money from the ratepayers. He thought most of them would agree with him that the money was not forthcoming owing to the fact that the incidence of local taxation was unjust and unfair, and the expenditure of public money was unpopular because it fell on the wrong shoulders. Some alteration of the system of rating was necessary by which the expenditure entailed by the use of motor-cars and heavy loads drawn by traction-engines should be put upon shoulders other than those they now fell upon. One of the most urgent necessities of Parliamentary reform was a proper adjustment of local taxation.

The President, in acknowledgment, said the Association had never had a more sincere or enthusiastic welcome. It was quite unique to be welcomed by the Chairmen of two local authorities and the Chairman of the County Council.

Public Works and Road Surfaces and Sewerage.

Mr. Arthur Gladwell, Engineer and Surveyor to the Rural District Council of Eton, read a paper on "Some Notes on Public Works, with special reference to Experiments in Road Surface Renewals and the Design and Construction of a Village Sewerage and Sewage Disposal Scheme." The Eton Rural District comprised an area of 43,000 acres, with a population of about 22,000, and an assessable value of 170,000*l*.; it was situate at the extreme southerly end of the county of Buckingham. There were nineteen parishes in the rural district (several of which were partly urban in character), with 150 miles of district roads, some of which, as might be imagined from the proximity of the district to the metropolitan area were of considerable and increasing importance. In the sphere of the work of a municipal engineer the question of road construction takes an increasingly prominent and important place. The road engineer was now to a greater extent than heretofore confronted with the problem of how best to provide for the enormous accession of traffic which the roads of the country generally had to maintain (an increase which was certain to continue at a still greater ratio than had been the case hitherto), as well as for the altered conditions of traffic, which all tended to render the problem as imperative of solution as it was acute in character.

In considering this important question with a view to improving present methods of construction in connexion with the roads under his charge, the author had made a series of experiments, the results of which he, with all deference, submitted to the impartial and critical judgment of his colleagues, in the hope that what was good in the system suggested might be tried by others, and what of efficiency or completeness it lacked might be brought out in discussing these suggestions.

Under modern traffic conditions an urgent necessity existed for the adoption of a method of road construction which did not depend in (*a*) any of its processes on the introduction into the structure of the road of loose particles of sand, roadscrapings, etc.; and (*b*) avoided the necessity for the use of watering-carts, thus enabling surfacing work to be carried out in the summer months in country

districts having no public water supply and where water was scarce; (*c*) gives a waterproof covering to the road foundation; (*d*) yields an absolute minimum of dust, thus doing away with the dust nuisance; (*e*) enables granite or other reasonably available material to be employed at the discretion of the road engineer; (*f*) produces a safe surface for traffic in all conditions of weather; (*g*) can be carried out without serious inconvenience to traffic; (*h*) does not materially increase the cost of the work as compared with the usual method. The operation of resurfacing a road was carried out in the following manner:—The existing road surface (if misshapen) was brought up to the proper form and cross-section, and well rolled to a solid surface (this operation would be equally necessary under any other system; in the great majority of cases, however, this need not be done). A layer, ¾ in. in thickness, of bituminous matrix, composed of ¼-in. granite or other chippings mixed with tar, pitch, etc., was laid on the old road surface and covered with a two-stone thickness of 1¾-in. or 2-in. broken granite or flints to form the aggregate. The aggregate being carefully and evenly laid over the matrix, it was immediately rolled down into the latter by means of a 10-ton or 12-ton steam-roller; the matrix, following the line of least resistance, was forced up into the interstices of the granite aggregate; the rolling was continued until the matrix appeared near the surface, when it would be found of advantage to supplement the lower matrix by brushing into the surface interstices a small quantity of similar matrix, which, however, must be made up with chippings not larger than ½ in. gauge. The whole mass was then thoroughly well rolled, when it would be found that the finer matrix would entirely seal the surface of the road against moisture, and result in a compact traffic-and-weather-resisting, as well as practically dustless road.

A section of road was laid down under the above system early in August last.

No watering-carts or sweepers would be found necessary, so that the cost of those would be set off against the extra cost of the bituminous matrix. In town work carried out under this system it might be of advantage to give a tar dressing to the finished surface after the lapse of, say, two or three months, and renew this treatment annually. The Local Government Board had placed upon the Council an order under the provisions of sect. 42 of the Public Health Act, 1875, in respect of scavenging, etc., in six parishes, viz., Burnham, Iver, Langley Marish, Datchet, Horton, and Fulmer. The work was now being carried out by contractors, but in respect of the parishes of Burnham and Iver the Council decided to supersede this system by providing drainage schemes. The author was therefore instructed to prepare details of these schemes. The scheme for dealing with the sewerage of the urban portion of the parish of Burnham was now approaching completion; that for Iver had been delayed owing to difficulties which had arisen in connexion with the acquisition of land necessary for sewage disposal works. The Burnham scheme was designed to deal with the sewage from a population of 4,500 persons at the rate of 20 gallons per head per diem; this sewage was delivered on the works by gravitation through a system of about 4¼ miles of 15-in., 12-in. and 9-in. stoneware sewers, and flowed from the outfall sewer to three detritus or grit chambers, which were provided with sharply sloping floors for convenience of the removal of detritus by means of sludge valves and pipes which could be brought readily into operation. The sewage then flowed to a distributing channel which runs at the back of the three liquefying tanks, and was connected thereto by means of six 9-in. cast-iron submerged inlets regulated by disc valves. The liquefying tanks were 45 ft. by 15 ft. by 6 ft. 6 in. average (excluding sludge-pits) depth, and had sloping floors for the more convenient removal of sludge, which could be valved off to sludge lagoons; the tanks were covered with a flat ferro-concrete roof sufficiently ventilated, and were calculated on the basis of a capacity of twenty-four hours' dry-weather flow. The tank effluent flowed under double scum-boards and over a stone weir at the outlet into a distributing channel, and thence through ports (which were fitted with automatic cut-offs and recorders) to three measuring chambers, each having a liquid capacity of 750 gallons. The contents of the measuring chambers were held up by means of automatic valves until the above capacity was reached, when discharge took place; the effluent being conveyed by means of 6-in. cast-iron pipes to automatic revolving open-trough distributors, each 53 ft. in diameter, which sprayed the effluent over circular beds (having 12-in. concrete sloping floors) of graded furnace clinker, the external walls being built with dry clinker of large size. At the present time only two beds had been constructed, leaving the third bed to be laid down when the expected increase of population made it necessary. These beds were ventilated by means of radiating rows (twenty-four in number) of Newhaven floor tiles, which also served as outlets for the bed effluent; the beds were 5 ft. high, and were provided with twenty-four rows of 3-in. perforated stoneware pipes at half the height of each bed, with a view to assisting the aeration in the centre of the beds; in addition to this there was an annular space, 9 ft. diameter, left in the centre of each bed, also with a view to effecting satisfactory aeration. The capacity of the beds was calculated on the basis of dealing with 168 gallons per cubic yard per day of twenty-four hours. The bed effluent flowed by gravitation to graded concrete channels round each bed, and was thence conveyed to the land by means of 12-in. stoneware half-pipe carriers having removable outlets at intervals. It was intended to cultivate the land with Italian rye-grass and a small experimental bed of peppermint

It was intended to treat up to three times the dry-weather flow in the manner above described, any excess being conveyed by means of a 12-in. cast-iron storm-water main to a storm-water bed 86 ft. by 40 ft. by 3 ft. deep, constructed on the westerly side of the outfall site, in such a position as to render the higher portion of the land available for irrigation of storm-water. No sewage would be allowed to reach the collecting carrier or the effluent outfall drain until it had first passed over the land. The 12-in. effluent outfall drain had been constructed through private farming land to its termination in a public watercourse known as Boveney Ditch which communicated to the River Thames. The outfall site was situated in the parish of Hitcham, and was 12¾ acres in extent; about 10½ acres of this area would be available for irrigation of the effluent, the remaining portion being taken up with the works superintendent's cottage, new road, etc The soil of the irrigation area was friable loam overlying gravel and chalk, and was well suited for purposes of sewage purification. The cost of the works would be defrayed out of a loan of 13,125*l.*, sanctioned by the Local Government Board.

Particulars of a Small Town.

Mr. W. W. Cooper, Surveyor to the Urban District Council of Slough, read a paper entitled "Some Particulars of a Small Town." He said the comparatively modern town of Slough, chiefly in the ancient parish of Upton-cum-Chalvey, was situate on the main line of the Great Western Railway, and had for its neighbours the historic towns of Windsor and Eton. Eton College long successfully opposed a railway station at Slough, but from the time this was obtained an impetus was given to building, and the name "Slough" chosen by the railway company and post-office had overshadowed and obscured the older name of Upton.

In 1863 the Local Government Board conferred urban powers, the area of the district then being about 430 acres, and the population about 4,000. By 1899 some of the areas outside, but abutting on the urban area, had become largely populated, and were rapidly increasing. The author, by the directions of his Council, prepared a scheme for the enlargement of the Council's urban area, which was duly submitted to the Local Government Board with an application for an "Extension Order." The proposed added areas included Upton-cum-Chalvey, parts of Stoke Poges, Farnham, and Langley-Marish parishes, all situate in the rural district council area of Eton. After protracted public inquiries by the Local Government Board, etc., and confirmation by the Bucks County Council, an order was made whereby the Council's area was increased to 1,530 acres, the population included doubling that of the "old area." The new area was unsewered, the houses, mostly of the cottage class, draining to cesspools, there was no adequate system of scavenging, and the roads were for the most part unlighted. After obtaining the "Extension Order" the author was appointed, under a special agreement and terms, engineer to prepare the necessary particulars and for carrying out the requisite main drainage for this added area. Present area of urban district, 1,530 acres; present estimated population, 14,000; present number of houses, 3,282; death-rate, 1905, 10 per 1,000; ratable value, 64,211*l.*; assessable value, 74,119*l.* A penny in the pound produced 254*l.* per half-year for district rate purposes. The urban district rate was 3s. 1d. per year. The amount of present loans was 48,139*l.* Slough was a water-closeted town, and with many baths. All new drains and sewers were subjected to the water test. It was sewered throughout on the "separate system," *i.e.*, each street had two pipe conduits, one for sewage and one for rainwater from roads and houses. With the exception of some portions of the old area of Slough each house had the separate system of drainage. The rain-water was conveyed to the nearest water-courses. Upwards of thirty-five miles of soil and surface-sewers were laid with pipes, the sewage gravitating to the outfall at Chalvey, where it was pumped in its crude state through one mile of 15-in. rising main to the Council's farm, Dorney, and distributed by carriers and earth-grips over land occupying an area of sixty-five acres, the subsoil being of an excellent porous earth and loamy gravel. The farm was in charge of the author, and the sewage was distributed by the Council's staff. The sixteen sewage-bays when at liberty were let to the Council's tenant, who had the remainder of the farm (300 acres) not used for sewage purposes. There was no effluent, and the land was not sewage sick. Twenty-five acres were the Council's freehold, and the remainder of the farm was held on lease. The sludge which accumulated in the outfall receiving-tanks was pumped by a centrifugal pump, 6-in. suction, through a separate 9-in. rising main, and deposited on separate bays.

The three Shone ejector stations had fifty gallon receivers in duplicate, discharging into the nearest sewer, and were situate within one and a quarter miles of engine air-compressers. The greatest lift was 30 ft. and the least 8 ft. The author's estimated cost of the added area drainage scheme was 24,500*l.*, and the actual cost was the same amount, including all wayleaves and compensations. The scheme in every way meets the requirements, also the approval, of the Council. The roadways generally were made with Clee Hill and Rowley Regis granite, and the side-streets with picked field flints. He had also laid down about 800 tons of tarmac and tar-macadam in the main High-street. All private streets were made up under the Private Street Works Act, 1902. The Council had a standard specification, stating the minimum requirements under which they would adopt a private street. The author had experimented with several dust palliatives, and had found gas-tar oil to give the best results. The Council proposed to extend the experiment this season. The advantages realised were briefly:—Easily applied without interfering with traffic; dries quickly; no offensive odour; road surface made practically impervious; no disintegration of surfaces by motors; very little mud in winter; less wear of surfaces; less noise. The material was applied by hand on granite road in good condition. Gas-tar oil, 2½d. per gallon delivered. Total cost, first coat, 1·88 farthings per yard super. Second coat, 0·94 farthing; one-eighth of a gallon per yard super. in first coating.

Mr. C. Jones (Ealing) thought it a good thing for the Association to visit a small town and see the work which had been done in so economical and efficient a manner.

Mr. Brown (Southall) said he had treated long lengths of roads at Southall with oil-tar, and it gave very good results. The cost was infinitesimal. He was in the happy position of buying the oil-tar at 1d. per gallon, and it cost them less than ¼d. per yard super. to treat the roads. It was eminently successful in keeping down dust, and it saved them at least 180*l.* in upkeep. Roads which had required mending every year only required mending once in two years, as the oil-tar preserved the surface. He thought the chief cause of the preservation of the road surface

was due to the composition of the oil-tar, which contained 20 per cent. of pitch.

The discussion on the papers was resumed later in the day at the Dumbbell Hotel, Taplow, after inspection of the various roads made of tarmac and according to Mr. Gladwell's specification.

The President asked for a full and frank criticism of the methods of road construction. It was only by frank criticism of the methods adopted that they could hope to obtain the best results.

Mr. Angell (Beckenham) described Mr. Gladwell's method of putting the matrix below the larger material as a remarkable inversion of the ordinary practice; whether it would be successful remained to be seen. He had used a large quantity of oil-tar on his granite roads with very good results; but when he came to apply it to gravel and flint roads there was disintegration of the surface. Then, again, there was objection to the smell, and complaints from shopkeepers, particularly milksellers and fish-dealers, that the food tasted of the tar.

Mr. Manning (Staines) said he had laid the Kingston and Windsor road with tarmac, which was wearing well. On painting it last year he found where the road was sheltered by trees signs of the tar perishing, and the accumulation of a lot of sticky mud, but on painting the surface he found it had stood the winter without signs of disintegration. He had tried oil-tar, but the Chairman of his Council had told him if he did not want to leave he had better discontinue the use of it, as he had received nineteen letters of complaint from shopkeepers. If Mr. Gladwell's experiment proved successful in use, and they could get a road which to all intents and purposes was waterproof, gave off little or no dust under present conditions of traffic without watering at an extra cost of 2d. or 3d. per year, then he had come as near as any of them to solving the problem of road maintenance for rural districts. He was going to follow Mr. Gladwell by making an experiment on similar lines, and if he could get anything like results he was sure his Council would welcome the change for the better.

Mr. F. T. Clayton (Reigate) said he had tried similar experiments to Mr. Gladwell's pretty extensively. His experience was that by putting the large material first and the matrix on the top he got the best results.

Mr. R. J. Thomas (County Surveyor of Bucks) said the Bath-road had the heaviest motor traffic in the world. They had counted 1,200 cars in twelve hours and 200 cars in an hour. Formerly a coat of granite lasted from four to four and a half years; now it lasted from nine to twelve months. They had to meet this motor traffic; it had come to stay. He had come to the conclusion that granite laid with sand and water binding would not keep down the dust on the roads. Unless they had large Government grants for the main roads their maintenance was going to run them to considerable expense. In the four years for 1901 to 1905 the cost of the roads had gone up from 6,619,463*l.* to 7,413,508*l.*, an increase of 794,045*l.* The increase was divided as follows:—On rural main roads, 290,077*l.*, or 20½ per cent.; on urban roads, 68,072*l.*, or 9½ per cent.; on rural district highways, 267,850*l.*, or 14⅓ per cent.; on urban highways, 129,200*l.*, or 9½ per cent.; on county boroughs (all roads), 38,846*l.*, or 3 per cent. It was the poor rural districts and not the rich urban districts which were suffering most, and they would continue to suffer until they got increased grants from the Exchequer to meet the outlay on the roads caused by this traffic.

Mr. A. H. Campbell (East Ham) said he did not like the interposition of the small material as a matrix between the hard basis of the road and the superimposed granite. He had been trying "Dustabato" as a matrix. He had a test half-mile of road laid with various materials, 200 yds. of it being treated with "Dustabato." He first scarified the road with a mechanical scarifier, put on 2½ in. of Guernsey granite, thoroughly well rolled that; then a man poured on this "Dustabato" composition as a flux until it went all over the surface and permeated every interstice in the road material. Then he put on a covering of about ¼ in. of Guernsey granite-spar. He then rolled it with a steam roller, and in about three hours it was about as hard as a rock. He could not speak of its wear, but it promised to be fairly durable. The cost was 6d. per yard above the ordinary macadam.

Mr. Dawson (Banbury), Mr. Piercy (Middlesex), and the President having briefly spoken, the authors of the papers replied to the discussion. Mr. Gladwell remarked that the encouragement he had received would act as a stimulus to him, and trusted others would give their attention to this question, so that it might not be said that the road surveyors could not solve it for themselves.

During the day visits were paid to the sewage pumping-station and electric light works at Slough; the new sewage disposal works for Burnham at Hilsham; and various sections of road made with tarmac and by Mr. Gladwell's process were inspected. The members had luncheon together at the Crown Hotel, Slough, and were entertained to tea by Mr. Cooper and Mr. Gladwell at the Dumbbell Hotel, Taplow.

Architectural Societies.

NORTHERN ARCHITECTURAL ASSOCIATION.—A meeting of this Association was held on Saturday last, when a visit was made to Fenham Hall and the Convent of the Sacred Heart. Some forty members assembled, and were conducted over the buildings by Mr. Leonard Stokes, of London, the architect for the additions now being made. The party were afterwards entertained to tea on the invitation of the Lady Superior. At the conclusion of the meeting a hearty vote of thanks was passed to the architect and the Lady Superior for their kindness.

THE GLASGOW INSTITUTE OF ARCHITECTS.—An extraordinary general meeting of this Institute was held on the 8th inst. at 115, St. Vincent-street, Mr. George Bell, Vice-President, in the chair. The resolution adopting the new articles of association of the Institute, which have been framed in order that the members of the Glasgow Architectural Association may be admitted as members of the Institute, was unanimously passed. The Secretary reported that the President, Mr. James M. Monro, and Mr. Barclay had been elected representatives from the Institute on the governing body of the Glasgow School of Art for three years from August 1 next. It was agreed to renew the prizes annually allowed to architectural students in the School of Art and the Technical College.

BOOKS RECEIVED.

OUR HOMELAND CHURCHES, AND HOW TO STUDY THEM. By Sidney Heath. (The Homeland Association.)

THE CATHEDRAL CHURCH OF BANGOR. By Pearce B. Ironside-Bax. (Geo. Bell & Sons. 1s. 6d.)

A SHORT ACCOUNT OF ROMSEY ABBEY. By the Rev. T. Perkins. (Geo. Bell & Sons. 1s. 6d.)

THE CATHEDRAL CHURCH OF LLANDAFF. By E. C. Morgan Willmott, A.R.I.B.A. (Geo. Bell & Sons. 1s. 6d.)

INNEN-DEKORATION. (Alexander Koch; Darmstadt.)

DEUTSCHE KUNST UND DEKORATION. (A. Koch; Darmstadt.)

JUNG WIEN: ERGEBNISSE AUS DER WIENER KUNST-GEWERBE SCHULE. (A. Koch; Darmstadt.)

METROPOLITAN ASYLUMS BOARD.

AT the fortnightly sitting of the Metropolitan Asylums Board on Saturday last week a letter was read from the Local Government Board stating that they were not prepared to sanction so large an expenditure as was proposed in connexion with the scheme for the provision of laboratories at Peckham Rye for the preparation of antitoxic serum, and suggesting that if on further consideration the Managers desired to make structural provision for this purpose they should, if possible, use part of the Belmont site, as that on which the stables are erected.

Long Reach Hospital.—It was agreed that the buildings of the Long Reach Hospital be retained; that the carrying out thereto as quickly as possible of the works recommended by the Works Committee, with a view to the preservation of the buildings, at an estimated cost of 2,200*l.*, and the periodical expenditure (every three or four years) of an approximate amount of 500*l.* for upkeep, be approved, and that the matter be referred to the Works Committee to be dealt with.

South-Western Hospital.—On the recommendation of the General Purposes Committee it was agreed to expend 370*l.* on repairing the floors of the South-Western Hospital.

Park Hospital.—A report was submitted by the Hospitals Committee relative to the condition of the roads at Park Hospital, and it was recommended that granite tracks should be laid along the road leading from the medical education block to ward O, the space between that on the outer edges and these tracks being paved with granite setts. The cost of this, with sundry extra works, was estimated at 810*l.*—Carried.

Fifty Years Ago.

FROM THE *Builder* OF MAY 23, 1857.

MICROSCOPICAL EXAMINATION OF THE METROPOLITAN WATER SUPPLY.

BY order of the Board of Health, Dr. Hassall has made a report on this subject, which has been printed, and from which it appears that, even in winter, the way in which (what we may without much scientific impropriety call) vermin teems in the water which the Londoners—drink, we were going to say, but rather—don't drink, is still somewhat horrifying, to water-drinkers especially; for, otherwise, it is rather a pleasant reflection to tea and coffee drinkers, and even to beer-drinkers, we suppose, that the vermin are at all events boiled—perhaps into wholesome, nutritive matter—who knows?—before it reaches their "scunnering" lips. Revolting as the live animalcules are, however, they are not so injurious (at least when fairly boiled) as the dead raw organic matter on which these animalcules live, and which accumulates especially when these feeders on it are few. The New River water, which used to rank amongst the least objectionable of the metropolitan waters, at a time when filtering and purifying processes were less heeded or practised by any than they now are, by no means now holds its own place in relative superiority: it has the bad pre-eminence, in this report, of a display of dead organic *débris*, though with less numerous animalcules than in some other instances, but still "particularly abundant," also—in comparison with the Chelsea, for instance (against which at one time we had occasionally to urge rather strong protests, it may be remembered, but) which is now at the head of the whole list in relative purity, and next to which are the West Middlesex, East London, and Kent waters. The living organic productions were also rather numerous in the Grand Junction, but most numerous of all in the Southwark and Vauxhall, the Lambeth New River, and Hampstead waters. A test of relative purity recommended, is simply to view the water in bulk beside an equal quantity of really pure water, the impure being always more or less tinged or coloured, in quantities such as a gallon and upwards.

Illustrations.

PRINCIPAL ENTRANCE; BIRMINGHAM UNIVERSITY.

THIS is the drawing of the entrance to Birmingham University which is exhibited at the Royal Academy, and which was commented on specially in the first article on "Architecture at the Royal Academy," in our issue of May 4.

Sir Aston Webb is the architect.

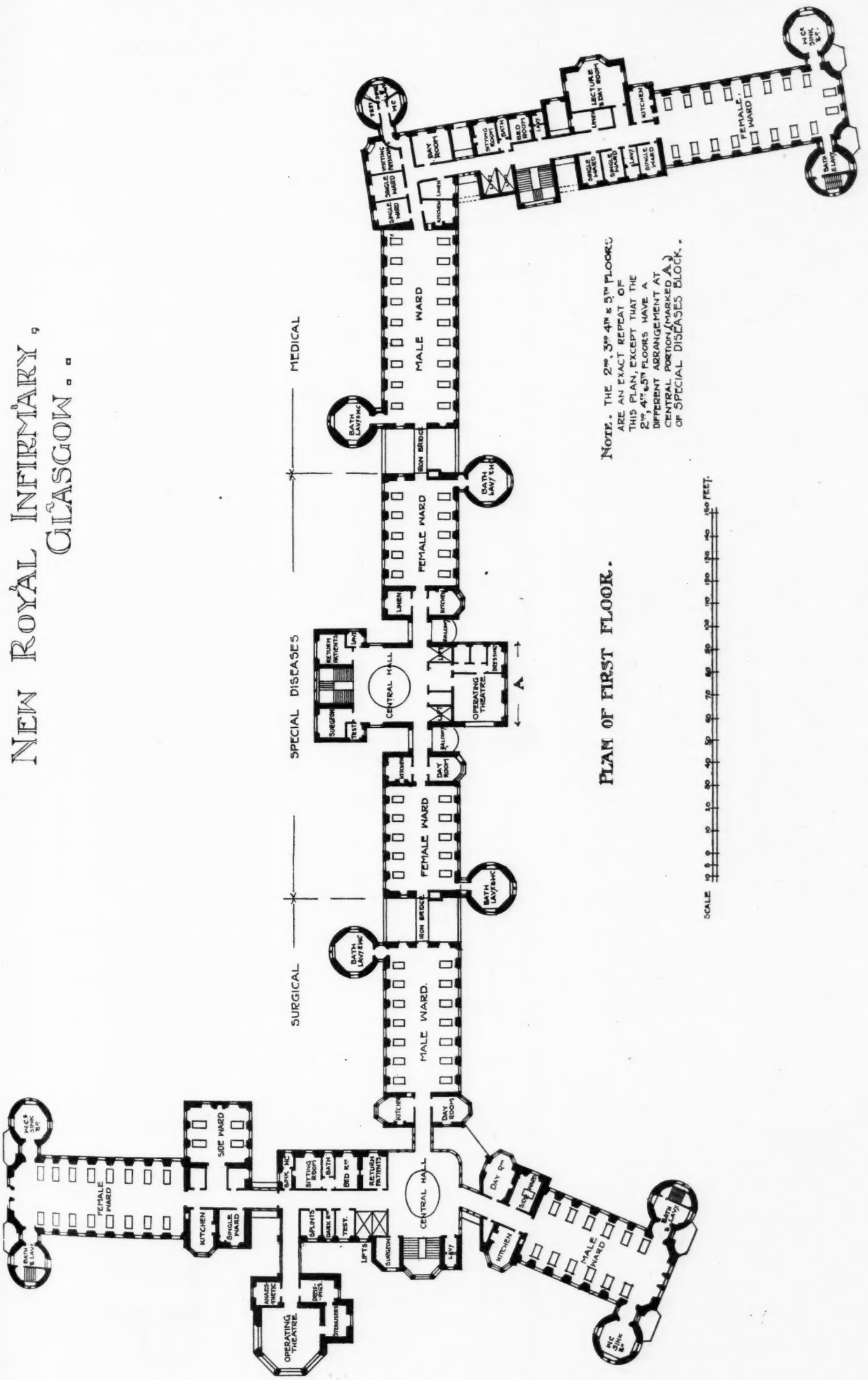
GLASGOW NEW ROYAL INFIRMARY.

WE illustrate this week the plan and perspective view of the New Royal Infirmary, Glasgow, the foundation-stone of which was laid on April 23 by the Prince of Wales.

The main building is six stories high, exclusive of basement, and will occupy generally the site of the present buildings.

The building is composed of three great blocks—viz., first, the north block (with short projecting wing to south), which is the surgical block, and contains 302 beds; second, the central block, which contains the administrative department and wards for special diseases, etc., and contains 105 beds; third, the south block (with projecting wing to north), which contains the medical wards, containing 205 beds. The surgical side is

NEW ROYAL INFIRMARY, GLASGOW.



NOTE. THE 2ND, 3RD 4TH & 5TH FLOORS ARE AN EXACT REPEAT OF THIS PLAN, EXCEPT THAT THE 2ND, 4TH & 5TH FLOORS HAVE A DIFFERENT ARRANGEMENT AT CENTRAL PORTION (MARKED A.) OF SPECIAL DISEASES BLOCK.

PLAN OF FIRST FLOOR.

SCALE 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 FEET.

divided into six services, while the medical is divided into five services, and on each floor a sitting-room, bedroom, and bathroom, arranged *en suite*, are provided for the resident surgeon or physician. The electric department is placed on the ground floor of the south block, and the baths are placed in the basement of the same block. The general kitchen and other apartments connected therewith are situated in the central block on the top floor.

The plan illustrated is that of the first floor, and the four floors above are an exact repeat of this, except as regards the central portion of the special diseases block, where three of the floors have a different arrangement as regards the smaller rooms, to suit the various requirements of these departments. The sanitary towers are placed at the side of the building at the extreme ends of the respective wards, and the balconies for patients, instead of being in front of the end windows, are provided in the recesses formed at the junction of the towers and end gables, by which means the light and air from the end windows of the wards are not obstructed in any way.

A special feature of the design is the great quadrangle to Castle-street, which measures 470 ft. long, with an average width of 160 ft.

The accommodation required necessitated the buildings being six stories high, and on account of the restricted area of the site the usual parallel arrangement of ward blocks was departed from, as the distance between the blocks would not have been sufficient for a structure six stories high. With the quadrangle arrangement it will be observed that no wards directly face each other at a nearer distance than 430 ft. Another reason for adopting this form of plan was the fact that it permitted of the whole of the buildings being erected block by block without at any time reducing the present accommodation of the infirmary, a matter of the greatest importance. This has been accomplished by building the new north block behind and clear of the present north block; the site occupied by the latter will be added to the quadrangle.

The walls of the building are brick, faced with white freestone from Giffnock Quarries. Steel construction will be largely used throughout the buildings, all the floors and roofs being of fireproof construction. The walls of entrance-halls and staircases, as also those of the large operating-theatres in the surgical block, will be chiefly constructed of steel, in order to provide the maximum of light. While the building is constructed fire-proof throughout to meet the requirements of the Glasgow Building Regulations Act, fire-proof emergency staircases are provided in three of the sanitary towers at the extreme ends of the building.

As regards heating and ventilating, the original plans were arranged on the Plenum system. It has now been decided to heat by low-pressure steam or hot water, and ventilate by opening windows and fan extraction. This change has permitted introducing cut-off or cross-ventilating corridors between wards and staircases and sanitary towers.

In addition to the main building, detached buildings are embraced in the scheme for the following departments, viz. :—Gatehouse or admission building, pathological building, isolation building, new power-station and laundry, and extension to nurses' home.

The architect is Mr. James Miller, A.R.S.A., Glasgow, and the plans embrace the requirements and suggestions of the managers of the infirmary and the medical, surgical, and special staffs, and also of the superintendent, of the infirmary. Further, the plans were submitted by direction of the managers to Sir Henry C. Burdett, K.C.B., and Dr. Donald Mackintosh, M.V.O., who made important and valuable suggestions on internal arrangements.

The total cost of the buildings, including architect's, measurer's, and engineer's fees, will amount to close upon 500,000*l*.

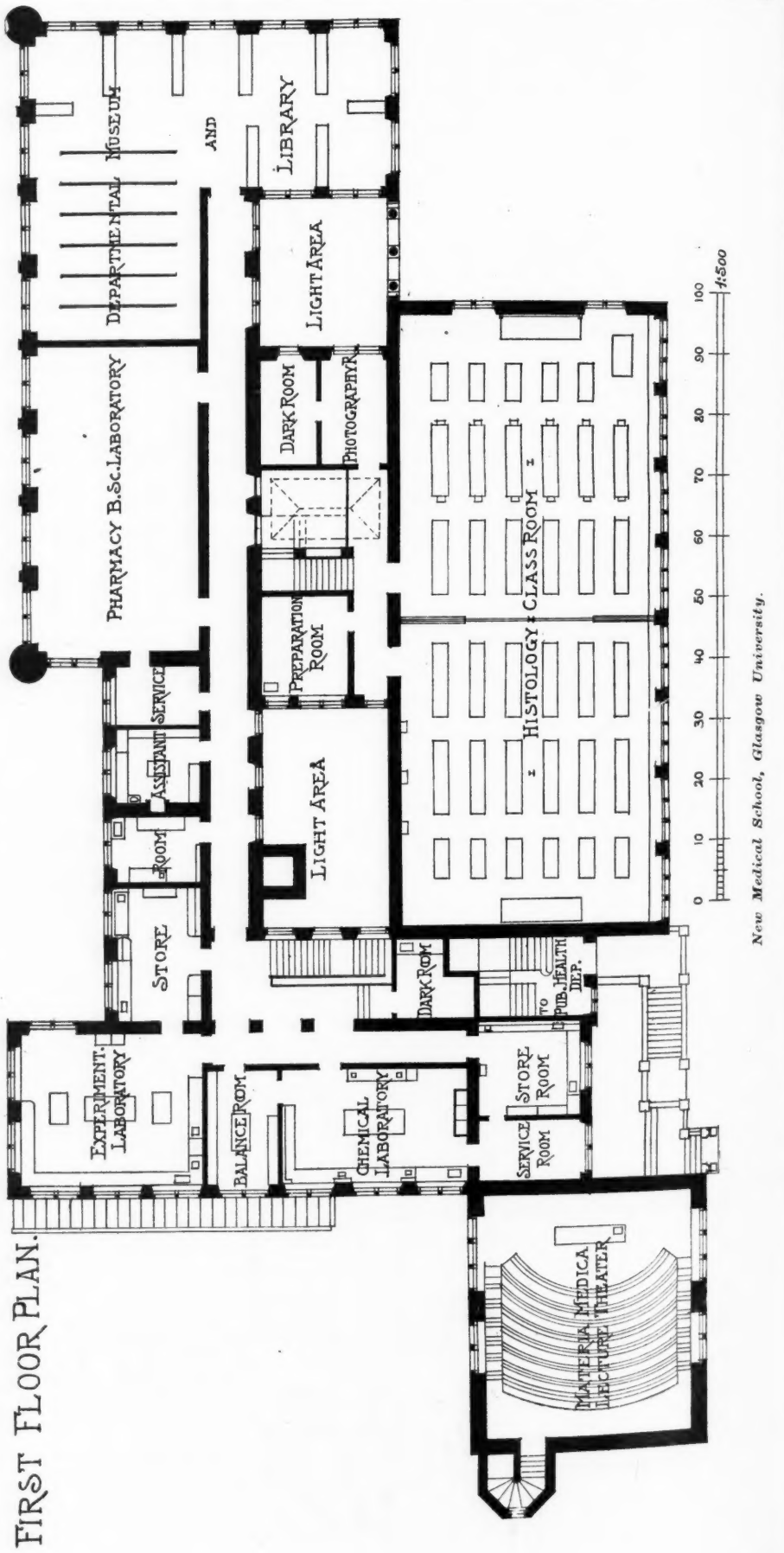
The perspective view given shows the quadrangle viewed from the south-west.

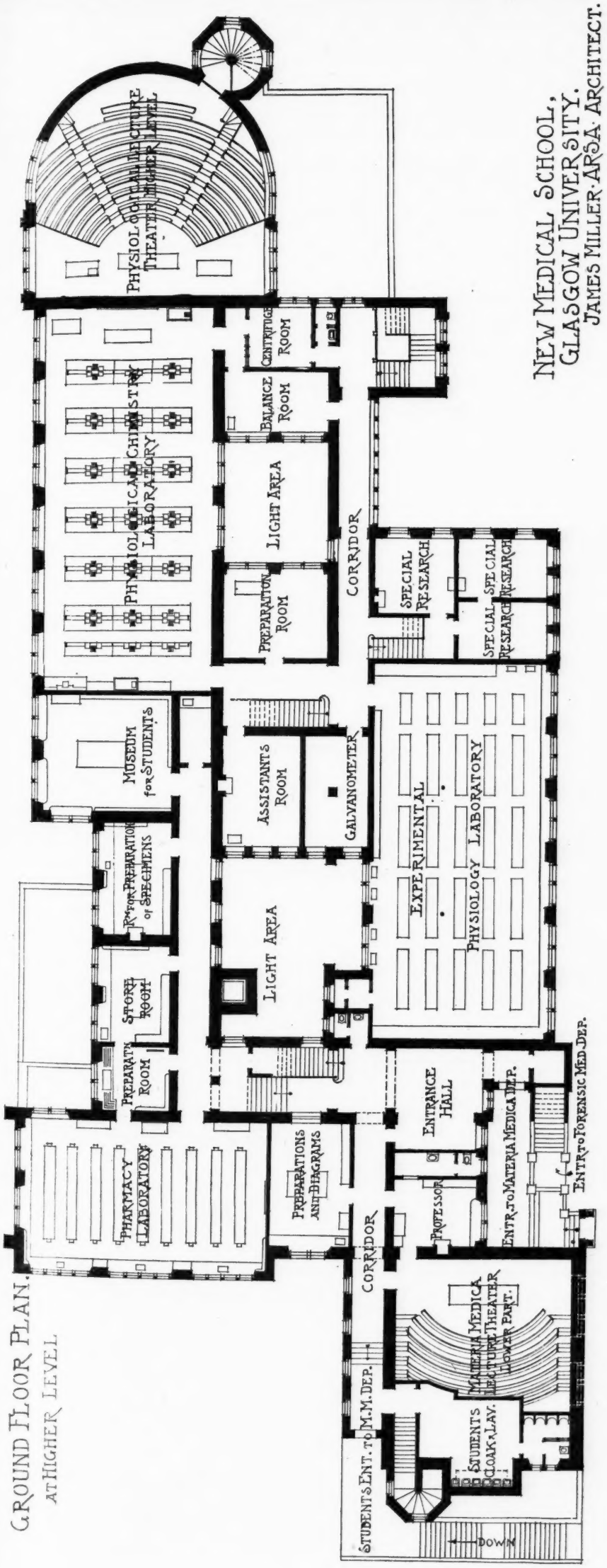
GLASGOW UNIVERSITY EXTENSION.

THIS is one of the buildings of the new University extension, which was opened by the Prince of Wales on Tuesday, April 23. It is devoted to the departments of physiology, materia medica, and forensic medicine and public health. It is built on rather an awkward site, the ground sloping in two directions, one of the slopes being rather steep, while the site on plan is an elongated triangle. To add to the difficulty, the building had to contain the three departments above named, each distinct in itself and with separate entrances. The entrance at the west end is the physiology department, while the entrances to the materia medica and forensic medicine and public health departments are at a higher level at the east end of the building.

The lecture theatre of the physiology department is of horse-shoe shape, and has a working capacity for 250 students. The students enter at the back of the theatre by a separate staircase, and all the other theatres are similarly arranged. On either side are two large windows, and additional light is obtained from a cupola in the roof. The chemistry-room is 77 ft. long by 35 ft. wide, and the histology-room is 100 ft. by 42 ft., divided in the centre by sliding partitions. The other two departments contain a series of laboratories, together with professors' private rooms, balance-rooms, students' cloak-rooms, and a large lecture theatre is provided in each department. The top floor of the east wing is occupied as a museum and library, and measures 85 ft. by 25 ft., and is lighted from the roof as well as from both sides and end.

The buildings are built with white stone from Giffnock Quarries, and are slated with blue Westmorland slates. Internally the





New Medical School, Glasgow University.

walls are tiled to the height of 5 ft., and the floors of corridors are laid with terrazza, the upper walls and ceilings being finished pure white.

The architect for the building is Mr. James Miller, A.R.S.A., of Glasgow.

PUBLIC LIBRARY, KENDAL.

THIS is the first premiated design in the recent limited competition for the Kendal Carnegie Library. The design has been approved by Mr. Carnegie's representative, and the author of it appointed architect to carry out the work.

The architect is Mr. T. Frederick Pennington, of Hounslow Heath, W., who not long ago took the first place in the open competition for the Windsor and Egham joint hospital.

CARE OF ANCIENT IRISH MONUMENTS.

IN Tuesday's Parliamentary papers Sir Thomas Esmonde asks the Secretary to the Treasury to state the number of the ancient monuments in Ireland and their names vested in the Board of Works since the passing of the Purchase Act of 1903; whether any arrangements have been made between the Board of Works and the Estates Commissioners for dealing with the question of the preservation of ancient monuments in Ireland; whether the Hill of Tara or any part of it has been vested in the Board of Works; what ancient monuments have been repaired by the Board of Works within the past twelve months; and whether any steps have been taken by the Board for the protection of those monuments vested in them from injury.

Mr. Runciman replies as follows:—

(1) The monuments vested in the Board since the passing of the Purchase Act, 1903, are: Grianan of Aileach, County Donegal; Creevalea Abbey, County Leitrim; St. Mary's Church, County Wicklow; Kill' o' the Grange Church, County Dublin; Inishkeen Round Tower, County Monaghan; Grey Abbey, County Down. The Board have agreed to accept the guardianship of the following, but they are not yet vested: Callan Abbey, County Kilkenny; Ballyboggan Abbey, County Meath; St. Mary's Church, Gowran, County Kilkenny; Roscommon Abbey. Of these ten monuments two, Callan Abbey, County Kilkenny, and Ballyboggan Abbey, were offered by the Estates Commissioners and the remainder by private owners.

(2) In accordance with the terms of the Act the Estates Commissioners communicate to the Board of Works the name and position of all ancient monuments situated on estates being sold under the Act, and the Board, after investigation, inform the Estates Commissioners in each case whether the character and condition of the monument justify the Board in assuming responsibility for its care and maintenance.

(3) The answer is in the negative. The earthworks on the Hill of Tara were scheduled to the Ancient Monument Protection Act of 1882, giving the Board power to protect them from injury by any person except the owners. So far the owners have declined to constitute the Board guardians of these earthworks.

(4) The following monuments have been repaired by the Board during the year ended March 31, 1907:—

Ancient monuments: Askeaton Abbey, Bective Abbey, Dingle Promontory, Dowth Moat and New Grange, Duleek Church, Duleek Priory, French Church, Waterford; Kells Priory, Mellifont Abbey, Rathmichael Church, Slane Abbey, Sherkin Island, Staigue Fort, Termonfeckin Castle.

National monuments: Ardfert Cathedral, Glendalough, Loughinisland Churches, Timoleague Abbey, Killiney Church, Skreen Church, St. Mary's Church, Delgany; Clonmacnoise, Dysert Church, Roscrea Tower and Church, Donaghmore Church, Fossy or Timahoe Church and Tower, Arran Islands Ruins, Inishmurray, Fenagh Church, Ratlass Church, Holycross Monastery, Maghera Crosses, Kilclipseen Crosses, Kilree Church and Tower, Jerpoint Abbey, Killeshin Church, Killery Church, Clones Tower and Abbey, St. Audoen's Church, St. Francis Abbey, Kilkenny; Killamery Stone Cross.

(5) The amount expended by the Board on the protection and maintenance of ancient monuments during the year ended March 31, 1907, has been:—(*a*) from voted moneys, 510*l.* 18s. 6d.; (*b*) National monuments fund, 593*l.* 19s. 5d.; total, 1,104*l.* 17s. 11d.

The preservation of these monuments is one of the duties of the Board's technical staff, and is under the particular direction of one of their principal surveyors who has special qualifications. Every monument in the Board's charge is inspected, as far as possible, at least once in each year, and a report sent to the Board as to its condition. Further, at the more important monuments there are resident caretakers.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Mr. H. P. Harris, Chairman, presiding.

Loans.—The Finance Committee recommended, and it was agreed, to lend Chelsea Borough Council 2,950*l.* for street widening, and 8,940*l.* for erecting working-class dwellings; Hammersmith Borough Council 3,830*l.* for various purposes; and Shoreditch Borough Council 3,867*l.* for restoration of town hall. Sanction was also given to the borrowing by Stepney Borough Council of 10,000*l.* for electric lighting, and Wandsworth Borough Council sanction to borrowing 3,450*l.* for slop shoot.

The Architects' Department.—The consideration of the financial estimates was then resumed, and Mr. Goldsmith, Chairman of the Building Act Committee, explained that it had been decided carefully to inquire into the whole matter of the Architects' Department and to see if it were possible to reduce the staff. No new men would be taken on in addition to those already employed in the Architects' Department.

The amendment by Mr. Hunt to reduce the estimate was then by leave withdrawn, and the estimate was agreed to.

London Building Act: Cubical Extent.—The Building Act Committee reported as follows :—

"We have had under consideration an application by Mr. J. Murray, on behalf of D. H. Evans & Co., Ltd., for consent to the re-erection of buildings of a capacity exceeding 250,000 cubic ft. upon the site of Nos. 308 to 320 (even numbers only), Oxford-street, and Nos. 21 to 24, Old Cavendish-street. The Council is empowered by sect. 76 of the London Building Act, 1894, to grant such an application provided that the building shall not (i) extend to a number of cubic feet exceeding 450,000 or any less number allowed by the Council without being divided by party walls in such manner that the cubical extent of each division does not exceed that number; (ii.) exceed 60 ft. in height; (iii.) be used for the purpose of any trade or manufacture involving the use of explosive or inflammable materials.

The plans submitted with the present application show that the building as proposed will be in practical conformity with conditions (i.) and (ii.) above mentioned. There is, however, some doubt whether the trade to be carried on on the premises, *i.e.*, drapery, is not one which involves the use of inflammable materials. Hitherto the practice has been to treat drapery establishments as coming within proviso (iii.) above mentioned, but we are of opinion that the drapery trade is not of the dangerous character contemplated by the Act, having regard to the use of the expression "explosive or inflammable materials," and that the time has come for the removal of the serious restrictions hitherto imposed on it in London. We would point out that should the Council see fit to grant the application under consideration, it will constitute an important precedent in dealing with future applications of a similar nature. In view of the importance of the question we have, at the request of the Fire Brigade Committee, delayed dealing with the matter in order that we might have their views on the subject, and we have had the advantage of hearing these views from their chairman. The Fire Brigade Committee are of opinion that the trade does involve the use of inflammable materials, and that, therefore, the Council is unable to grant the concession asked for. We do not concur in this view, though we are of opinion that adequate means should be required, as provided for in the above-mentioned section, to prevent the spread of any possible outbreak of fire. We recommend (*a*) That Mr. J. Murray be informed that the Council will be prepared to consider favourably his application on behalf of D. H. Evans & Co., Ltd., for consent, under sect. 76, to the re-erection of buildings upon the site of Nos. 308 to 320, Oxford-street and Nos. 21 to 24 Old Cavendish-street, provided he do submit amended plans showing the whole of the structural ironwork as being protected with fire-resisting material not less than 2 in. thick; the show windows as being separated from the rest of the building by fire-resisting screens; and the windows in the open court in the centre of the block and all openings in the external walls which are within 30 ft. of openings in the adjacent property as being glazed with fire-resisting material. (*b*) That Mr. Murray be further informed that any consent which may be granted will be subject to the provision of fire appliances to the satisfaction of the Chief Officer of the London Fire Brigade, to the submission of plans (in duplicate) showing the position of the said fire appliances, and to the premises being in telephonic communication with the nearest fire-station."

Mr. Goldsmith, in moving the adoption of the report, said the Committee, after careful consideration, had decided to remove the very serious restrictions on the drapery trade and allow a larger cubic space.

The Hon. R. Guinness (Chairman of the Fire Brigade Committee) moved the reference back of the report, and pointed out the increased danger there would be of fire. At Baltimore a fire occurred not long ago which burnt out a greater area than that of the great fire of London.

Lord Duncannon pointed out that in Paris and Berlin there were drapery establishments with a cubical capacity up to 4,000,000 ft. He had asked the Paris Superintending Architect, who told him there had been no fire at any of the drapery establishments there for thirty years.

Mr. Phillimore said that the recommendation was part of the policy of the Building Act Committee of the late Council. A broad, airy shop was better for health than a narrow one.

Mr. Edward White said that in the Building Act Bill brought before the Council two years ago any person would have been allowed to construct this larger building, and there was no objection by the fire brigade then.

Capt. Hemphill said the Building Act of London was obsolete, and the old Building Act Committee felt that the restrictions placed on trade in London were too great.

On a division the amendment was rejected by a large majority.

Science-rooms, Avery Hill Training College, Woolwich.—The Education Committee recommended, and it was agreed :—

"That the estimate of expenditure on capital account of 2,542*l.*, submitted by the Finance Committee, in respect of certain additions to the science-rooms at the London County Council Avery Hill Training College, be approved."

Erection of Schools, etc.—The Education Committee reported as follows :—

"Work is proceeding in connexion with the erection of seven new schools, and the rebuilding of one school, the enlargement of another, and the improvement of six existing schools, giving a total accommodation of 7,297, at an estimated cost of 202,978*l.* Two secondary schools are in course of erection, and work is proceeding in connexion with the enlargement of another, giving a total accommodation of 906, at an estimated cost of 55,330*l.* Work is also proceeding in connexion with the erection of a manual training centre for forty boys, the provision of a drill-hall and heating installations at three schools, at a total cost of 3,888*l.* Tenders for alterations at a special school, heating work at two schools, provision of lightning conductors at a technical institute, and also for cleaning and painting twenty-six schools at Easter, 1907, have been accepted involving a total expenditure of 7,274*l.* Negotiations are proceeding for the purchase of two new sites and for the acquisition of outstanding interests in a third site at a total cost of 25,409*l.* Iron buildings have been erected on the Buxton-street site (Whitechapel) for the accommodation of 240 children. Arrangements have been made for the periodical cleaning of windows of London County Council schools during the Easter holidays. Kitchens, etc., for the preparation of midday meals for students of a day training college and two secondary schools have been provided. The necessary minor improvements and repairs have been executed at various schools, including the provision of incandescent gas lighting and improvements in sanitary and heating. The conversion of a lecture-room at one school into a room for the teaching of science has also been decided upon. We have approved the apportionment of expenditure for warming and lighting agreed upon by the managers of twenty-five non-provided schools in respect of the use of the premises out of school hours. In accordance with the scheme for the modernising of old schools, six schools have been selected for structural improvement during the ensuing financial year."

Condition of Drains and Offices at Certain Non-provided Schools.—The same Committee reported :—

"It will be remembered that in regard to 205 non-provided schools, in which the condition of the drains and offices was reported as constituting an immediate danger to the health of the children, the Council informed the managers that unless the sanitary arrangements passed satisfactorily the smoke and chemical tests the Council would cease to maintain the school as from a date specified. The managers of these schools, with the exception of nine cases in which the work is in course of completion, and twenty-five cases in which the schools have ceased to be maintained by the Council, have complied with the Council's requirements, and in ninety-eight of these cases the drains having also passed the water test, have been regarded as permanently satisfactory. In seventy-three instances in which only the smoke and chemical tests have been applied, the managers have been informed that before the drains and offices can be regarded as being in a permanently sound condition it will be necessary for them either to submit a certificate from the medical officer of health for the district that the water test has been applied, and that the drains have been found satisfactory, or to permit the Council's officers to apply the water test. There still remain 109 cases, not previously regarded as a source of immediate danger to the health of the children, in which the managers have been required to put the drains into a sound condition, and the managers have been informed that the certificate of the medical officer of health must be submitted, or that they must allow the Council's officers to apply the necessary test."

Temperature of Rooms in Non-provided Schools.—They also reported :—

"Our attention has been drawn to the very defective heating of the classrooms in a large number of non-provided schools, the temperature records indicating that in many cases very low temperatures have prevailed during the past winter months. It appears from these returns that in twenty-two departments of these schools the temperature has occasionally been below 34 deg., whilst in ninety-eight departments it has often been below 39 deg. In the majority of the non-provided schools the temperature has frequently been below 55 deg. In a few of the most serious cases we have obtained detailed reports by the architect (Education) after visits have been paid to the schools, from which it appears that the low temperatures recorded are, as a rule, due to one or more of three causes—(i.) the open fires throughout the schools being too small for the size of the rooms, and being insufficient in number; (ii.) stoves of obsolete pattern being continued in the school; (iii.) the late hour in the morning at which the fires are lighted. We have accordingly drawn the attention of the managers to this matter, and have requested them to effect forthwith the necessary improvements in the heating arrangements of the schools in question. We have also communicated in each case with the Council's and the metropolitan borough councils' representatives requesting them to do what lies in their power to promote a satisfactory solution of the difficulty."

Theatres, etc.—The following proposals were agreed to :—

"Electrical, heating, and ventilating installations proposed to be provided at the Hammersmith Public Baths, Lime-grove, Hammersmith (Mr. J. E. Franck).

Arrangements in connexion with the exhibition of the Society of Motor Manufacturers and Traders, Ltd., to be held at Olympia, Hammersmith (Mr. F. H. Payne).

Heating system, proposed parochial hall, Trinity-road, Upper Tooting."

District Surveyors' Districts.—The Building Act Committee reported as follows, the recommendations being agreed to :—

"The Council has from time to time, on our recommendation, readjusted the limits of District Surveyors' districts, in pursuance of the policy initiated of November 19, 1901, of rendering the districts so far as may be possible and convenient, co-terminous with the boundaries of the metropolitan boroughs, and of arranging the districts so that the average of the fees received may in no case amount to less than 500*l.* per annum.

The effect of the readjustments, the last of which were made by the Council on December 11, 1906, has been to reduce the number of districts from seventy-four in 1890 to fifty six in 1907, to make them more convenient for administrative purposes, and to bring the districts to a more uniform value. Since the beginning of December, 1906, three more districts have become vacant, and we are now enabled to submit further suggestions for carrying out the policy outlined above. It is proposed to unite the districts of Mile End Old Town and Limehouse, with the exception of the detached portions of the latter which will be dealt with at a later date. If the Council adopts this suggestion we purpose advertising forthwith for applications for appointment as District Surveyors in twelve out of the fourteen districts which will then be vacant. We recommend (*a*) That the parish of St. John, Wapping, and that part of the parish of St. Botolph Without, Aldgate, previously known as the precinct of St. Katharine, be severed from the District Surveyor's district known as Limehouse, Wapping, St. Katharine, and Ratcliff. (*b*) That the District Surveyor's district of Limehouse, Wapping, St. Katharine, and Ratcliff, readjusted as outlined in the foregoing resolution (*a*), be added to the district of Mile End Old Town as from the date of the appointment of a permanent District Surveyor to such district. (*c*) That the District Surveyor's district of Mile End Old Town, readjusted as outlined in the foregoing resolution (*b*), be designated Mile End and Limehouse."

Cost of District Surveyors.—Mr. Hunt asked the Chairman of the Buildings Act Committee if he was aware that the cost of the Council's fees was 19s. 9d. in respect of the erection of a gate at Child's Hill, whereas the cost of the work was only 17s.

Mr. Goldsmith said that the figures were 12s. 6d. for the District Surveyor, and 7s 3d. for the Council's fees.

Reconstruction of Greenwich to Lewisham Tramways: Alterations to Bridges.—The Highways Committee recommended that expenditure, on capital account, not exceeding 4,000*l.*, be sanctioned for alterations to the Sparta-street and Plough bridges in connexion with the reconstruction of the tramways from Greenwich to Lewisham.

This was agreed to.

Tramways.—The same Committee recommended, and it was agreed :—

"That further expenditure, on capital account, not exceeding 2,444*l.*, be sanctioned for the execution of the roadwork and plate-laying for the construction of the new tramways from Camberwell Green to Lordship-lane.

That further expenditure, on capital account, not exceeding 1,334*l.*, be sanctioned for the execution of the roadwork and plate-laying for the construction of the new tramways from Goose Green to Stuart-road, Peckham.

That further expenditure, on capital account, not exceeding 2,200*l.*, be sanctioned in addition to that of 29,363*l.* 17s. 9d. authorised on February 17 1905, and January 24, 1905, for the laying of cable-ducts for the electrification of portions of the Council's southern tramways.

That a further payment of 1,720*l.* 10s. be authorised to Messrs. Reid Brothers, in accordance with the terms of the award of Mr. J. Kincaid, dated December 14, 1906, in respect of the laying of cable-ducts for portions of the Council's southern tramways; and that the solicitor do complete the matter."

White Hart-lane Estate.—The Hon. W. Guinness pointed out that at the rate they were building cottages on the estate it would take forty years to complete the estate.

Sir J. M. Beachcroft hoped that the estate would be sold so that other people could put up houses.

Repaving of Carriageway, Victoria-embankment.—The Highways Committee recommended:—That, subject to the passing of the annual maintenance estimates for 1907-8, expenditure, on maintenance account, not exceeding 3,745*l.*, be sanctioned for the repaving of a portion of the carriageway of the Victoria-embankment. That the offer of Constable, Hart, & Co., Ltd., to lay about 8,700 sq. yds. of tar-macadam paving on the Victoria-embankment at the rate of 7*s.* a square yard be accepted.

Cottages, Tower-gardens Section, White Hart-lane Estate.—The Housing of the Working Classes Committee recommended, and it was agreed, that additional expenditure, not exceeding 195*l.*, in respect of extra work under the contracts with Mr. G. E. Pulford and Mr. G. D. Barns for the erection of 122 cottages on the Tower-gardens section of the White Hart-lane Estate be sanctioned.

Dwellings, Ratcliff.—The same Committee recommended, and it was agreed, that additional expenditure, not exceeding 1,000*l.*, under the contract with Messrs. F. & T. Thorne for the erection of Bekesbourne-buildings, Ratcliff, be sanctioned in respect of extra work in connexion with the foundations and the drainage of the buildings, and the provision and fixing of bedroom cupboards.

The Northern Low-level Sewer.—The Council discussed shortly after eleven o'clock the proposal to alter the line of the northern low-level sewer, in order to avoid passing so close to St. Paul's Cathedral as was originally intended.

The Main Drainage Committee recommended the expenditure of 55*l.* for reprinting the specifications concerned, and the reference back was moved by Mr. E. Smith, who said he understood that the cost of the alteration might amount to 15,000*l.* or 20,000*l.*, and that it was by no means clear that the alteration would meet the views of the authorities of St. Paul's.

Sir John McDougall, who seconded, said the Council had already come to an agreement with the Cathedral authorities. The opinions of experts varied, one having stated that the sewer might safely be constructed at the level proposed, under the centre of the Cathedral.

Mr. Cohen said the deep concern for the stability of the Cathedral was shared by men of all parties. The possibility of affecting the structure should be avoided.

Mr. Hunt, Chairman of the Main Drainage Committee, said they would consult the Dean and Chapter before they spent a farthing. The nearest point of the line now proposed would be over 100 yds. away from the Cathedral.

The amendment was lost by a large majority, and the recommendation approved.

The Council adjourned for the Whitsun recess, having sat over nine hours.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Clapham.—An addition to the Free Home for Destitute Boys, Nos. 2 and 4, Rectory-grove, Clapham, to abut upon Larkhall-rise (Mr. C. E. Hutchinson for Mr. A. Russell-Baker).—Consent.

Holborn.—A wrought-iron lamp in front of the British Museum station of the Central London Railway, High Holborn (Mr. H. H. Holt for the Central London Railway Company).—Consent.

Lewisham.—Porches in front of six semi-detached houses on the Grove House Estate, abutting upon The Avenue, Grove-park, Lee (Mr. S. S. Dottridge for the London and General Estates Co., Ltd.)—Consent.

Lewisham.—That the application of Mr. R. C. Fry for an extension of the periods within which the erection of four one-story shops in front of a portion of "the Priory," between Nos. 408 and 418, High-street, Lewisham, and two one-story shops in front of Nos. 436 and 438, High-street, Lewisham, was required to be commenced and completed, be granted.—Consent.

St. George, Hanover-square.—A wrought-iron lamp in front of the Bond-street staton of the Central London Railway, Oxford-street, St. George, Hanover-square (Mr. H. H. Holt for the Central London Railway Company).—Consent.

Strand.—A wrought-iron lamp in front of the Tottenham Court-road station of the Central London Railway, Oxford-street (Mr. H. H. Holt for the Central London Railway Company).—Consent.

Strand.—A wooden oriel window in front of No. 8, Charles-street, St. James (Mr. F. W. Hunt for the directors of the London and Westminster Bank, Ltd.).—Consent.

Fulham.—An iron and glass covered way in front of No. 34, Vereker-road, West Kensington (Mr. T. Brown).—Refused.

Strand.—An iron and glass shelter at the Piccadilly Hotel, to abut upon Regent-street (Mr. W. Woodward).—Refused.

Strand.†—An iron and glass shelter in front of Kettner's Restaurant, Church-street, Soho (Messrs. G. Keeling, Teale & Co., Ltd., for Messrs. Kettners').—Refused.

Width of Way.

Rotherhithe.—An addition to Christ Church schools, Rotherhithe, at less than the prescribed distance from the centre of the roadway of Paradise-street (Mr. A. H. Ryan-Tenison for the vicar and managers of the schools).—Refused.

St. George-in-the-East.—A building at less than the prescribed distance from the centre of a footway leading from Hilliards-court to Cinnamon-street, Wapping (Messrs. Fair & Myer for Messrs. A. Jacob & Co.).—Refused.

Width of Way and Frontage.

Marylebone, West.—An iron and glass skylight over the basement in front of the Star Coffee Tavern, James-street, St. Marylebone (Mr. E. W. Hobkirk for the Ossington Coffee Tavern Company).—Consent.

Width of Way, Space at Rear and Alteration of Building.

Hammersmith.—A building on the eastern side of Willow-vale, Uxbridge-road, Hammersmith, and of an addition at the rear of No. 122, Willow-vale (Mr. A. G. Channer for Mr. J. Watts).—Refused.

Space at Rear.

Lewisham.—Modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of buildings on the eastern side of High-street, Lewisham, with an irregular open space at the rear (Mr. P. Waterhouse for the Prudential Assurance Co., Ltd.).—Consent.

Space at Rear and Projections.

Lewisham.—Two houses on the eastern side of Sydenham-park-road, Lewisham, southward of "Dunkeld," with an irregular open space at the rear and with projecting wooden entrance porches (Mr. W. H. Gritten for Mr. W. Rogers).—Consent.

Formation of Streets.

Wandsworth (detached).—Extension of time for the formation or laying out of new streets upon a site abutting upon the south-western side of Rosendale-road, Herne-hill, southward of Norwood-road.—Consent.

Woolwich.—That an order be issued to Mr. R. Stewart refusing to sanction the abandonment of the formation of a portion of Westmount-road, and also refusing to sanction the formation or laying out of a street for carriage traffic in continuation northward of Westmount-road, Eltham-park Estate, Eltham.—Refusal.

Height of Buildings.

Marylebone, East.—A picture gallery at the roof level of Messrs. Waring & Gillow's new premises, Nos. 164 to 182, Oxford-street (Mr. R. F. Atkinson for Messrs. Waring & Gillow).—Consent.

Buildings for the Supply of Electricity.

Hackney, South.—The construction of engine foundations at the Hackney Electricity Works, Millfields-road, Hackney (Messrs. R. Hammond & Son for the Hackney Metropolitan Borough Council).—Consent.

Marylebone, East.—Boiler-house extension at the Grove-road generating-station, Grove-road, St. Marylebone (Mr. C. S. Peach for the Central Electric Supply Co., Ltd.).—Consent.

Alteration of Buildings.

St. Pancras, North.—The uniting of Nos. 153 and 155, Highgate-road, St. Pancras (Mr. J. French).—Refused.

The recommendation marked † is contrary to the views of the local authorities.

The Student's Column.

ELECTRIC LIGHTING AND HEATING.—XIX.

Incandescent Lighting — Carbon Filament Lamps—Light Distribution—Candle-power and Life—The Proper Voltage for Glow Lamps—Nernst Lamp—Tantalum Lamp—Osmium Lamp—Osram Lamp.

INCANDESCENT LIGHTING.—By sending an electric current through a thin platinum wire it is possible to make the wire so hot that it is brilliantly incandescent. Platinum wire, however, is expensive, and the temperature at which it produces light is too near its melting-point. Hence it is not suitable for commercial lamps. Hitherto the electric lighting of private houses has been mainly done by carbon filament lamps, but the recent discovery of suitable highly-refractory metals makes it probable that in the immediate future metallic filaments will be extensively used in electric lamps. Whatever the nature of the filament, it is enclosed in a glass bulb which has been exhausted of air. The electric current raises this filament to incandescence, and so a small fraction of the electric energy expended is radiated as light. We shall first describe the carbon filament lamp.

Carbon Filament Lamp.—In one process of manufacture the filament is made from cotton thread, which is drawn through a dilute solution of sulphuric acid, and thus converted into cellulose. The threads are wound on a carbon "former" so that they may be of the required shape. They are then packed in a carbon crucible which is kept at a red heat for several hours. It is thus converted into a carbon filament.

In another process cotton wool is immersed in zinc chloride, and the viscous liquid thus formed is squirted through narrow tubes into alcohol. The filaments formed are left in the alcohol for several hours so that they get hard, and they are then soaked in cold water. They are finally carbonised in the same way as the thread filaments described above. This type of filament is usually referred to as a "squirted filament."

The filaments do not pass through the glass bulbs, but are joined to "leading-in" wires, which must be made of a metal which has practically the same coefficient of expansion for heat as glass. Platinum is generally employed, but nickel-steel can be used. The ends of the leading-in wires are usually made into very thin tubes, into which

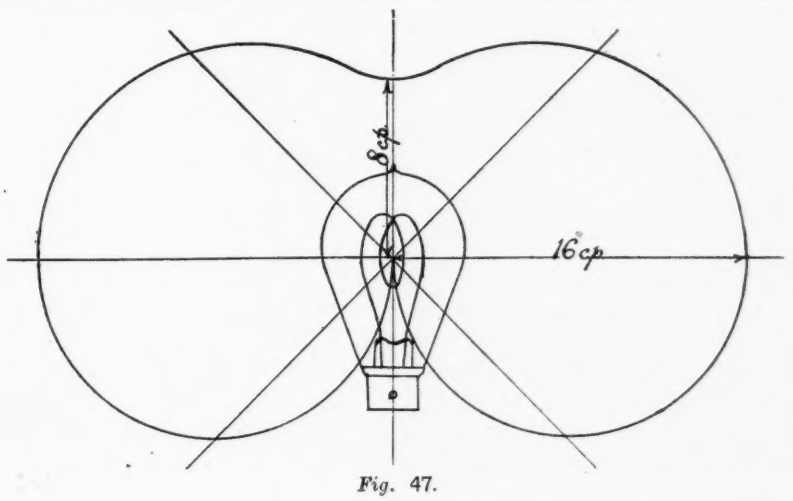


Fig. 47.

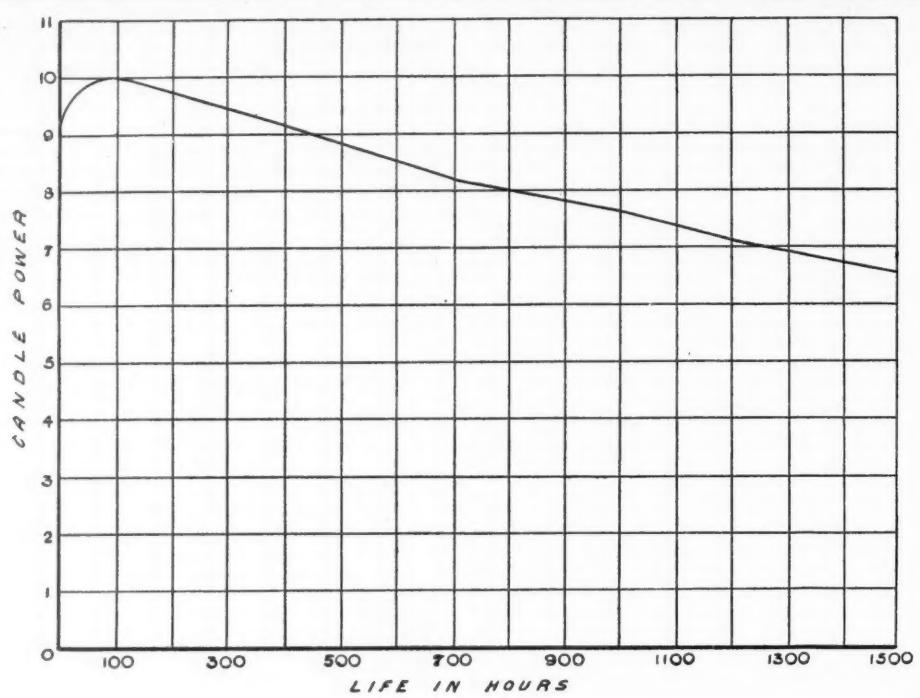


Fig. 48.

the ends of the filament are fitted, the tubes being then pinched with pliers. The contacts are improved by placing them in a hydrocarbon vapour or liquid, and passing an electric current through them. The ensuing deposit of carbon upon the heated metal greatly improves the contact.

The last process in the manufacture of the filament is known as "flashing." The filament is made incandescent in coal-gas or benzol vapour. If the cross-section be not uniform the thinnest portions will heat the highest temperature, and will thus receive the thickest deposit of carbon. Hence, after the flashing the filaments are more uniform in section throughout their length. Some manufacturers also state that flashing gives a durable outer skin, and so increases the life of the filament.

A new method of treating the carbon filaments has recently been developed in America. By means of an electric furnace they are raised to a high temperature, and are thus converted into graphite. The filaments are now hard and flexible. The resistance of the ordinary carbon filament is about twice as great when cold as it is when hot. In the new "metallised" filaments the resistance is about the same when hot as when cold. The efficiency of the new lamp is stated to be much higher than that of the ordinary carbon filament lamp.

After the leading-in wires have been joined to the carbon filament, they are sealed into a glass bulb by the aid of the blow-pipe flame. The bulbs are then exhausted of air and sealed. The vacuum is tested by placing the bulb on brass filings which are in electrical contact with one terminal of an induction coil, the other terminal being connected with the earth. If the bulb be not sufficiently exhausted of air it will glow in a dark room when the hand is placed on it. If the vacuum be good there will be no visible effect produced.

Light Distribution.—In Fig. 47 a 16 candle-power glow lamp is shown, and the way in which it distributes light in a vertical plane is indicated by the curve drawn round it. A radius drawn in any direction from the centre of the loop of the filament to this curve will give the candle-power in that direction. In the given lamp, for instance, the horizontal candle-power is 16, but the vertical candle-power is only 8. The lamp shown has a bayonet collar (BC). This is made of a cylindrical piece of brass which is insulated by vitrite from the two brass pieces on the end of the cap which are connected with the leading-in wires. When the cap is put into a suitable holder the brass pieces make contact with the mains through the connecting wires when the switch is turned on.

Candle-power and Life.—It is well known that the candle-power of glow lamps falls off when they have been long in use. A minute amount of the carbon volatilises in vapour and condenses on the bulb, thus blackening it and preventing the emission of part of the light. For this reason large bulb lamps are preferable to those with small bulbs, as the obscuration is less. In Fig. 48 the results of a life test on a nominal 8-candle-power lamp are shown. When first measured its candle-power was 9·2. It then gradually increased until after burning for 100 hours its candle-power was 10. It then gradually diminished. For instance, after burning 800 hours its candle-power was 8, and at the end of 1,500 hours it was 6·5. The lamp was not tested on a commercial lighting circuit, but the voltage from a battery was carefully regulated so that the applied P.D. did not differ from 110 volts by more than about half a volt throughout the whole test. If it had been placed on a lighting circuit where the voltage varied ± 3 per cent. from the declared pressure, it would probably have been burnt out before the 1,000 hours.

The Proper Voltage for Glow Lamps.—Let us suppose that a gradually increasing voltage is applied at the terminals of a 100-volt 16-candle-power glow lamp. At about 50 volts the lamp filament appears to be dull red, at 80 volts it is bright red, at 95 volts it would give about 10 candles, and at 100 volts it would give 16 candles, and take about 0·64 of an ampere. Hence, for 64 watts of electrical energy we get 16 candles. The efficiency of the lamp would thus be 0·25 candle per watt. When the PD applied to the lamp was 110 volts, the candle-power would be about 24, and the efficiency would be much higher. As the voltage increases both the candle-power and the efficiency rapidly increase until at about 180 volts, when the lamp looks almost as dazzlingly bright as the electric arc, the filament will burn through at some point and the circuit be broken.

In Fig. 49 the connexion between candles per watt and life in hours is shown. For instance, if the filament be run at such a voltage that its efficiency is 0·25 candle per watt, its life will be about 810 hours. If, however, it be run at a higher voltage so that its efficiency is 0·33 candle per watt, its life will be only about 200 hours. The "high-efficiency" lamps which are sometimes sold therefore are simply short-life lamps. It has to be remembered that after the lamp attains its maximum candle-power (at 100 hours in Fig. 48), the efficiency begins to diminish steadily, and at the end of its life the efficiency is generally about 20 per cent. less than it was at the start. The "life" of a lamp is generally considered over when its candle-power has dropped to 20 per cent. of its initial value.

Nernst Lamp.—Many substances which are non-conductors of electricity at ordinary temperatures become good conductors when their temperature is sufficiently high. Glass is an example. At ordinary temperatures it is an excellent non-conductor, but when red hot it conducts electricity like a metal. The little white rod F (Fig. 50) which forms the glower of the Nernst lamp acts in this way. It is generally made of zirconia or thoria, oxides of zirconium and thorium respectively. It is about 1 in. long, and is surrounded by a heating coil (HC) made of a thin spiral of kaolin wound with platinum wire.

When the switch is turned on and the pressure is applied at M, M (Fig. 50), a current will flow through the heating coil (HC), but practically none will flow through the cut out (CO), the iron resistance (IR) and the

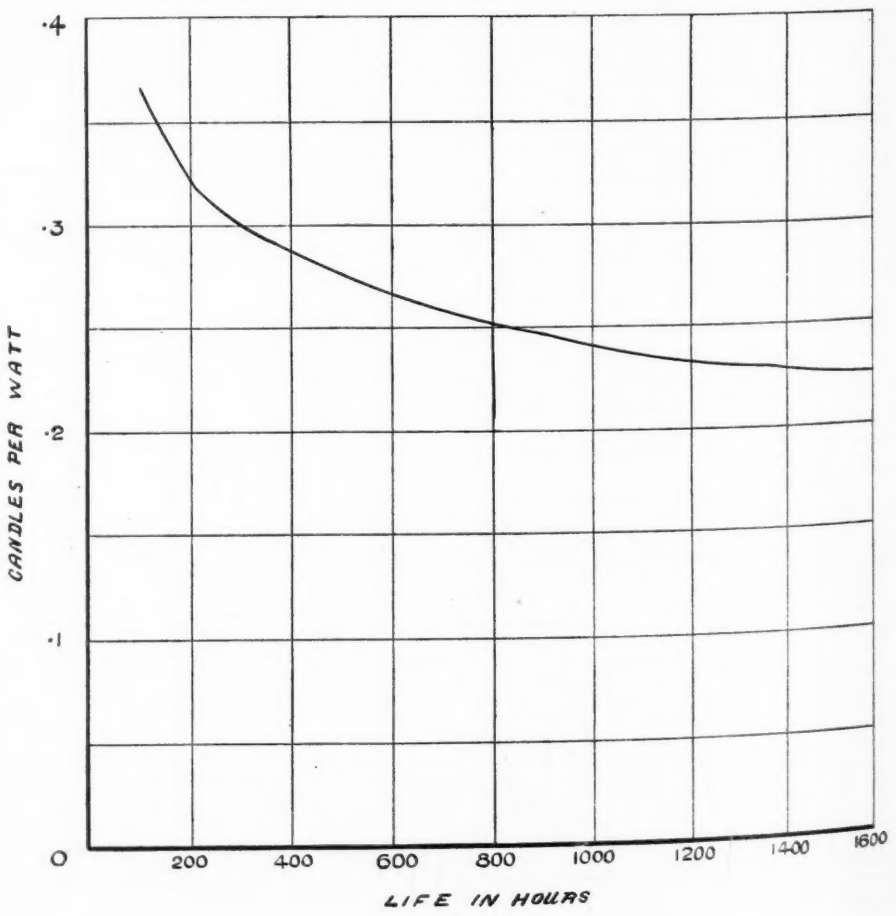


Fig. 49.

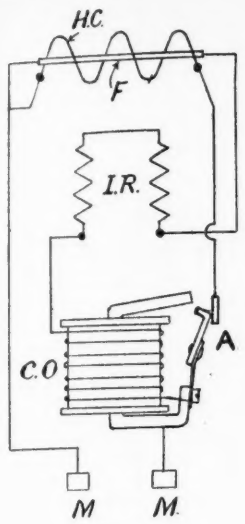


Fig. 50.

glower, which are all connected in series. When, however, HC gets red hot and the glower gets hot by the radiation from it, the resistance of the glower falls, and the current now passing through it will heat it still more until the increase in the resistance (IR), generally called the "ballasting" resistance, checks the further rise of the current. The current in CO causes it to act as a magnet and attract the armature A, thus cutting the heating coil out of the circuit whenever the current begins to flow through the glower. The resistance IR is placed in a glass bulb containing hydrogen, which prevents oxidation. About 15 per cent. of the power supplied is absorbed by the ballasting resistance.

It will be noticed that the Nernst glower, unlike the carbon filament, glows in the open air. The consumption of power for a given illumination is about half that of the carbon filament, and the average life of the glower is about 600 hours. The connexion between candle-power and life is very similar to that illustrated in Fig. 48.

Tantalum Lamp.—Messrs. Siemens & Halske, of Berlin, now manufacture large quantities of glow lamps made with tantalum filaments. Tantalum is a very hard metal, but in its pure state it is ductile. Before Dr. Bolton succeeded in separating it from its salts it was known to chemists only as a powder. It is drawn into wires, the diameter of which is only 0·05 of a millimetre. A 25-candle-power lamp (Fig. 51) for a 110-volt circuit has a filament 65 cm. long (25·5 in.). It has been calculated that a pound of tantalum will make 20,000 of these lamps. It is first melted in the electric arc or in an electric furnace, then hammered into sheets, and finally drawn into wire.

Tantalum can be heated to a higher temperature than carbon, and its efficiency is about 0·6 candle per watt, or practically double that of the carbon lamp. Owing to the tantalum filament being soft at the high temperature at which it works, a special method of suspending it from hooks fixed on radial arms fastened to a central glass stem is adopted (Fig. 51). The average life of the lamp at 0·6 candle per watt is about 1,000 hours.

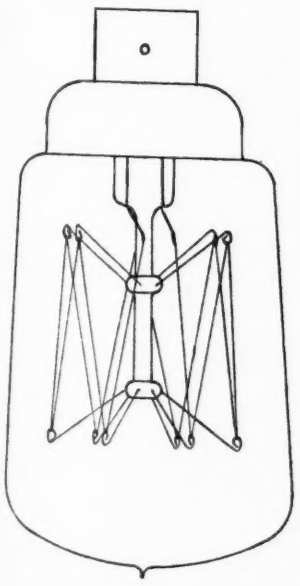


Fig. 51.

Osmium Lamp.—As osmium is a hard, crystalline metal which cannot be drawn into wire, the filaments of these lamps are made of an osmium paste. The so-called osmium filaments are probably made from an alloy of osmium and tungsten, and so are really "osram" lamps. Their efficiency and durability are quite as high as tantalum lamps.

Osram Lamp.—The filament is made of an alloy of osmium and tungsten (called in Germany wolfram). This lamp is the best of the metal filament lamps. Its initial efficiency is about one candle per watt, and its life about a 1,000 hours. The general appearance of these lamps is similar to the tantalum lamps (Fig. 51).

One drawback to metal filament lamps is that they can only be made of great illuminating power when they are to be used on 200-volt or higher pressure circuits. Doubtless improvements will be made in the near future, but how to manufacture a 5 or an 8 candle-power metal filament lamp suitable for a pressure of 250 volts is an exceedingly difficult problem.

Obituary.

M. FELIX RÉGAMEY.—The death is announced, at Juan les Pins, at the age of 63, of the painter Felix Régamey, who had been a zealous col laborator with M. Guimet in getting together his well-known museum of Oriental art in Paris. He was the author of numerous notes, pictures, and drawings illustrating the life and art of Japan. He was a pupil of Boisbaudran, and had in later years been appointed Inspector of Drawing in the Paris schools. He had at one time a considerable reputation as a water-colour artist in English exhibitions, but his style and his choice of subjects were rather sensational.

MR. JENKINS.—The death is announced of Mr. David Jenkins, of Abbot's Hill, Llandilo, Carmarthenshire. Mr. Jenkins became, by examination, an Associate of the Royal Institute of British Architects in 1888, and was elected a Fellow in 1894. He was the architect of St. John's Church, Maesteilo, Llandilo, and of a church at Cwmllynfell, Brynamman (1902-3); for the restoration and enlargement of the parish church of St. Teile, Llandilofawr (1905); of the memorial bell-tower, Llanegwad Parish Church (1904); enlargement of Llandilofawr and Llandebie Churches, and restoration of Brechfa Church (1903); of Maesteilo and Llandilo vicarages; and of several chapels in the locality. He made the plans and designs of many schools, comprising those at Ammanford (infants') and Mynyddcerig for the Llandebie Urban District School Board; of a large number of houses, villas, farmhouses, and business premises in Llandilo, Llangadock, Llandebie, Maes-Evan, Llandovery, Penygroes, Morfa, Llanwrtyd Wells, and around, and on the Pantglas estate in Carmarthenshire; the police-station, institute, and stores, Ammanford; the public hall at Cross Hands, Llanelly; the cattle and sheep market, Llandovery (1903); additions to Dayle House, Llandilo, for Dr. R. D. Evans, seven years ago, and, in 1903-4, the roadway and water-supply at Llathyglae and Cwmbachtel, and Colonel Methuen's shooting-box, Pumpsaint, near Llandwrda.

MR. H. C. PRICE.—The death is announced of Mr. H. C. Price, late Assistant County Surveyor for Surrey. Mr. Price had been connected with the County Surveyor's office since the establishment of that department at the Kingston County Hall in 1893. Previously, he had held a position in the London office of the late Mr. Howell, senior, who was County Surveyor prior to that time.

General Building News.

NEW CHURCH, KEYHAM.—The foundation-stone of a new church to be dedicated to St. Thomas, was laid recently at Keyham. The style of the building is Perpendicular, and the church will, when completed, consist of nave, north and south aisles, with tower at the south-west corner, chancel with stalls for a large choir and clergy, vestries, classroom, and heating chamber. It will be of limestone, with Portland and Bath stone facings, and accommodation will be provided for 520 worshippers; but it is proposed to build only at present the nave and aisles and porch, at a cost of about 3,500*l*. Messrs. Hine, Odgers, & May are the architects.

CHURCH ADDITION, HIMBLETON, WORCESTERSHIRE.—A vestry has been erected at the Himbleton Church. The designs were by Mr. C. Ford Whitcombe, architect, of London and Worcester, and the builder was Mr. George Huxley, of Redditch.

WESLEYAN CHURCH, BIRKDALE, LIVERPOOL.—On the 4th inst., the memorial-stones of a new Wesleyan church in Liverpool-road, Birkdale, were laid. The plans prepared by Mr. H. E. Peach provide for the erection of a building capable of accommodating 300 worshippers. The building will consist of a nave and transepts, and will be faced with red plastic bricks and buff terra-cotta facings and traceries. The cost of the work will be over 3,000*l*.

NEW CHURCH, CROFTON PARK, S.E.—On the 11th inst. Lord Dartmouth laid the foundation-stone of St. Hilda's Church, Crofton Park. The architects are Messrs. Greenaway & Newberry, of Queen Anne's-gate, and the cost of the work is estimated at 7,000*l*.

CHURCH EXTENSION, WATERFORD.—Work has been commenced on the enlargement of the Franciscan church at Waterford. The scheme includes the erection of a transept and a domed apse. The chief external features will be the transept gables and a tower, which will be over 100 ft. in height. The designs were prepared by Mr. Thomas Scully, B.A., C.E., of Waterford, and the contract has been entrusted to Messrs. John Hearne, builders.

NEW PRIORY, BODMIN.—The Right Rev. Charles Graham, D.D., recently laid a memorial-stone of the Roman Catholic Priory of St. Mary, in course of erection at Bodmin. The building is in local material, the stone being quarried near the site. The dressings are of Cornish granite. The building consists of a ground floor, containing a guests'-room, community-room, refectory, and domestic offices, with a cloister running round the interior. On the two upper floors are the rooms for the brothers and also the chapel. What is now being erected is only a part of the building, which it is contemplated raising when opportunity offers. The architects are Messrs. Ralling & Tonar, Exeter.

NEW SCHOOL, MERTHYR.—A new Forward Movement school has been opened at Merthyr. The building, which has been erected from designs prepared by Mr. A. W. D. Marks, is situated on the main road leading from Merthyr to Dowlais. The cost of the building is 1,300*l*., and accommodation is provided for 500. Later it is proposed to erect a main hall, and, including the excavation and the erection of retaining walls, which works have been partly carried out, the expenditure incurred up to the present is 2,700*l*.

NEW SCHOOLS, PLYMOUTH.—On the 8th inst., the Mayor of Plymouth laid the foundation-stone of the new schools at Prince Rock. The designs for the buildings are by Messrs. Thornely & Rook, and were accepted in competition. Mr. A. N. Coles, of Plymouth, is the contractor. Accommodation will be provided for 330 boys, 330 girls, and 360 infants. The elevations are to be carried out in Plymouth limestone, with a small quantity of Portland stone used for the dressings of the window heads and gables. The roofs are to be of Delabole slate. The infants' department is to be on the ground floor, and that of the boys on the second floor. A woodwork-room and a metalwork-room are provided for; and on the first floor is a department in which cookery instruction can be given to fifty-four pupils. Other rooms are provided for the head and assistant masters and mistresses, and for stationery and general storage. Two play-grounds will be laid out, one for the boys and the other for the girls and infants. Sheds are to be erected for physical exercise.

PRIMITIVE METHODIST SUNDAY-SCHOOL, STANDISH.—A new Primitive Methodist Sunday-school is being erected in Preston-road. The building will cost about 1,000*l*., and will contain six classrooms, accommodating 400 children. The contractors are Messrs. Bywater & Sons, of Pemberton, and the architect is Mr. W. H. Dinsley, of Chorley.

SALVATION ARMY HALL, WANDSWORTH, S.W.—The Salvation Army are erecting a new hall on a site at the corner of Orchard-street and York-road, Wandsworth. The building will accommodate about 600, and the total cost will be 3,065*l*. The plinth will be of glazed bricks, and the elevations of stone facings, with dressings of Ham Hill stone. Roman tiles are to be used for the roofing, and the gallery will be constructed of fireproof material. Attached to the hall, at the rear, will be two schoolrooms, approached by a special staircase from Orchard-street. The work of erection is being carried out by Messrs. Sands & Burley, builders, Walthamstow, and the architect is Mr. Oswald Archer.

POLICE-STATION, SMETHWICK.—A new police-station has been erected at Smethwick, at a cost of about 8,000*l*. The building contains on the ground-floor the charge-room, two offices, a day-room for recreation purposes, and adjoining it is the mess-room. At the rear the cells are situated. These are six in number, and are lined with glazed bricks. On the upper story of the

building sleeping accommodation for the men is provided. Arrangements have been made for eleven cubicles, but there is space for fou more. There are also lavatories, bath-room, etc. Adjoining is the sick-room. In the basement are a series of other rooms—cleaning-room, store-room, coal place, etc. A space has been reserved for the provision, in the future, of a court-room, waiting-room, magistrates'-room, and clerks' office. The building has been erected from designs prepared by Mr. Osborne, of Wolverhampton, in conjunction with the County Architect.

NEW FIRE STATION, SALISBURY. — A new station has been erected in Salt-lane. The front is carried out in red brick, with gauged arches and terra-cotta dressings. The main station on the ground floor measures some 37 ft. by 40 ft., and is laid with pitch-pine wood blocks. Leading from the main station is the duty-room, a members'-room and workshop, whilst in the yard stabling is provided for two horses, also a harness-room, with hay loft above. The upper floor has been fitted up as quarters for the resident fireman. Electric light is installed throughout, and provision has been made for heating. The plans were prepared in the City Surveyor's Department, whilst Messrs. Billett & Musselwhite were the builders.

CENTRAL STATION HOTEL, GLASGOW.—The work of extending and improving this hotel has now nearly been completed. The building has been carried along Hope-street towards Argyle-street for a distance of over 150 ft., the height to the level of the ridge being 137 ft. On the first floor in this wing the new dining-room is placed, and beyond is an arbitration-room, with retiring-rooms and rooms for counsel and witnesses. Bedrooms and suites of rooms occupy the upper floor, and the hotel has now accommodation for somewhere about 850 visitors and servants. The dining-room measures 104 ft. in length by 47 ft. in width, and its length to Hope-street is divided into six bays by pillars of Greek marble. A subsidiary dining-room has been provided on the east side of the corridor leading to the great dining-room, with accommodation for 100 persons. New service-rooms have been constructed adjacent to the dining-rooms. The arbitration-room is placed on the south side of the dining-room. It has a separate staircase and a direct entrance from the station platform. A new lounge has been formed opposite the first floor landing of the main staircase. It is in the form of a semi-ellipse, and in the centre is a glass dome decorated with plaster work. Adjoining is a new billiard-room divided into two sections by a panelled and balustraded screen in oak. On account of the height of the hotel it was found necessary to provide two water-tanks on the roof, with a storage capacity of 13,000 gallons. The new section of the hotel is fireproof throughout. The contractors for the whole works were Messrs. P. & W. Anderson, Glasgow. The company's superintendent of works was Mr. Alexander Grant, assisted by Inspectors Walker and Prentice; and the whole of the work was designed and carried out under the superintendence of Mr. James Miller, A.R.S.A., architect, of Glasgow.

WORKMEN'S INSTITUTE, FERNDALE.—The workmen employed at Messrs. David Davis & Sons' Collieries, Ferndale, are about to have erected a new institute, with swimming baths attached, at a cost of 12,000*l*. Mr. T. Richards, Pontypridd and Pentre, has been appointed architect. The site agreed upon is in High-street, and the institute will contain a refreshment lounge and supper-room, in addition to the ordinary reading-rooms, and a billiard saloon with five tables.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—An appeal is made by the committee of management for contributions towards the cost—estimated at 40,000*l*.—of erecting new buildings for ninety beds in place of the existing hospital in Soho-square, after plans prepared by Mr. H. Percy Adams. A grant of 2,000*l*. has been made out of King Edward's Hospital Fund, together with a conditional grant of another 2,000*l*., provided that building operations are begun within two years. The present buildings afford room for sixty beds, with the in-patients' department and offices; the out-patients' side and nursing staff quarters were erected at a cost of 8,000*l*. thirteen years ago.

Miscellaneous.

THE VALE AND THE PARK, CHELSEA.—A local committee seek to preserve the Vale at Chelsea, which it is feared will otherwise be taken for building purposes. From the north side of King's-road a row of small houses, named "The Vale," projects into an area of nearly 5 acres, which yet lies as garden ground between King's and Elm Park roads, with Church-street and Park-walk to the east and west. The ground of the Vale, lately shorn by the laying-out (on the site of the old mansion house) of Elm Park-gardens, on the north, or Fulham-road, side, forms a vestige of the grounds, about 40 acres in extent, appertaining to Chelsea Park, which belonged to Sir Thomas More and, unenclosed in his day, were known as the "Sand Hills." In 1620 one Blake sold 35 acres of the land to the Earl of Middlesex, who encompassed them with a brick wall and set up the gate, designed by Inigo Jones, since removed to Chiswick House. One hundred years afterwards the land belonged, we find, to the Marquis of Wharton, at one time Lord Lieutenant of Ireland. It subsequently became the scene of a joint stock speculation for growing raw silk under a patent taken out in 1718 by John Appletree. A lease was taken for 122 years, workshops were built, and 2,000 mulberry-trees were planted. But that project speedily came to an end, and the Mulberry Ground was taken and looms were erected for Le Blon's equally abortive scheme for tapestry works, described by Walpole in his "Catalogue of Engravers." Of the taverns built at the four corners of the original property there yet remain the "Man in the Moon" in King's-road, the "Goat in Boots" at the north-west, in Fulham-road, and the "Queen's Elm" at the north-east, which marks the site of the "Cross Tree," plotted in James Hamilton's survey of 1664. The "Queen's-tree at the end of the Duke's Walk" is cited in the Chelsea parish records of 1586, and the tree was reputedly so called from having given shelter in a shower to Queen Elizabeth when walking with Lord Burleigh, who lived at Brompton Hall. The later name, "Nine Elms," of the cross-roads, was derived from an arbour of nine elms planted by one Bostocke around the older tree. Charles II.'s private road to Fulham and so to Hampton Court was opened as a public highway, King's-road, in 1719. Le Blon painted the sign of the goat, which it is said Morland re-painted, for the "Goat in Boots," formerly the "Goat," and so named before 1663, in Little Chelsea village. In the early years of the XVIIIth century a favourite sign for post-houses was that of Mercury, with the legend, "Mercurius Is Der Goden Boode"; the latter words became corrupted into "The Goat in Boots."

CONCRETE BLOCKS.—Messrs. Wright & Co. (New Malden) send us specimens of their 4½-in. hollow blocks for fireproof partitions, and for the walls of bungalows, greenhouses, and other such buildings. These are made with the best Portland cement as a matrix, and are light and easily cut; they are said to be very sound-proof, a quality which we have had no opportunity of testing: but with the hollow in the centre they seem likely to prove so. They are finished with a rough surface, which affords a sufficient key for plaster without any further preparation. Altogether they promise to form a very useful material for the purposes for which they are intended.

THE CAMPANILE AT VENICE.—The Venice correspondent of the *Standard* has sent the following communication to that journal:—"The results of the commission appointed to inquire into the quality of the materials used in rebuilding the Campanile at Venice and the correctness of the work already done are most satisfactory. The architect, Signor Basile, and the sub-commission of three professors from the Polytechnic of Milan, are convinced that the materials used so far in the erection of the tower are good, and contain no elements likely to affect the durability of the building. They consider also that the enlarging of the foundations and the lightening of the construction will have the excellent effect of reducing the weight per square inch, in comparison with the old tower, by one-half. They are unanimously of opinion that the Campanile should be rebuilt, not restored, and that, while retaining the old form and beauty [?], it should have the advantage of all that modern knowledge and science can teach, in order to avoid the weaknesses of the earlier building."

THE LATE MR. C. E. KEMPE.—Mr. Walter E. Tower, who, during some years past has been associated as an architect with his relative the late Mr. Kempe, has undertaken to carry on his work in stained-glass and decorative church art, with the assistance of the present staff, whom Mr. Kempe trained in his own school of thought and who have been in his employment for periods ranging from ten to forty years.

STAR AND GARTER HOTEL, RICHMOND HILL.—This well-known hotel will be offered for sale at the Mart in the course of next month. An inn by that sign was established on the present site in or about 1738. A fire consumed the older portions of the hotel thirty-seven years ago. Of the existing buildings the banqueting-house was erected in 1864-5 after plans and designs by E. M. Barry, R.A.; the pavilion or ballroom, with gallery, was added by C. J. Phipps.

IRISH STONE.—In the Parliamentary Papers for Wednesday, Mr. MacNeill calls the attention of the Chief Secretary for Ireland to a resolution of the Donegal County Council protesting against proposals for the building of the superstructure of the technical training college with Portland stone, notwithstanding that a much superior stone —viz., Mount Charles stone, can be had in the county, and has been used with great success in large buildings, amongst others in the cathedral in Letterkenny—its superiority having been conclusively proved by analysis.——Mr. Runciman, in reply, states that large quantities of brick and stone of Irish origin will be used in the superstructure of the building, and that Portland stone will only be employed when no other is so suitable.

Capital and Labour.

HAWICK OPERATIVE MASONS.—The operative masons of Hawick came out on strike on the 6th inst. as the result of a proposed reduction of wages of from 8½d. to 8d. per hour. The questions of walking-time to jobs in the country and lodgings there are also matters of dispute.

THE SANITARY POTTERY TRADE STRIKE.—Another conference of manufacturers and operatives in connexion with the strike in the sanitary pottery trade was held at Stoke-on-Trent on the 7th inst. The Rev. Prebendary Stuart, Rector of Stoke, again presided. A basis for the settlement of minor matters of difference still left open was arrived at and signed by the Chairman. The conditions agreed upon were that every attempt should be made to settle at the works all prices embodied in the notices given prior to March 25, and, failing agreement on all points within seven days, any prices then unsettled should be referred to a general conference of employers and operatives, with the Rector of Stoke as Chairman. Failing agreement then, the prices in dispute should be left to the final decision of the Rector. The operatives' representatives agreed to put the question of returning to work as soon as possible.

Legal.

THE POWERS OF THE TRIBUNAL OF APPEAL.

THE case of the London County Council *v.* The Metropolitan Railway Company and others came before a Divisional Court, consisting of Justices Phillimore and Bray, on the 14th inst., on the appeal of the London County Council from a decision of the Tribunal of Appeal on August 1, 1906. (Reported in the *Builder* of August 4, 1906.)

Mr. Horace Avory, K.C. (with him Mr. Moresby White), on behalf of the appellants, said the question raised on the appeal was whether the London County Council could be made to pay costs in a case where there was an appeal to the Tribunal of Appeal from the decision of the Superintending Architect defining the general line of buildings under the London Building Act. The facts were set out in the special case which had been stated by the Tribunal of Appeal at the request of the London County Council. It appeared that the matter went before the Tribunal on the appeal of the Metropolitan Railway Company and others against the decision of the Superintending Architect as to the general line of buildings on the south-east side of Euston-road, Marylebone, between Southampton-street and Bolsover-street, and the north-west portion of the building site, and also the western side of Cleveland-street between Euston-road and Buckingham-street. The Tribunal decided to vary the line of the Superintending Architect, as shown on the certificate, both on the south-east side of Euston-road between Tottenham-court-road and Bolsover-street, and also on the western portion of Euston-road, as indicated in the plan presented on appeal. The Tribunal also directed that the London County Council should pay 60*l*. costs to the Metropolitan Railway Company, and 50*l*. costs to the owners of No. 365, Euston-road. The question for decision was whether the Tribunal had power to order the London County Council to pay these costs.

The learned Counsel having read the material sections in the London Building Act, 1894, contended that the Tribunal had no power to order costs against the London County Council. He said the County Council was not a "party" to the case, they simply appearing before the Tribunal to assist in supporting the decision of the Superintending Architect. He submitted as a matter of law that the Council were not parties to the appeal in the sense that they could be made liable for costs.

Mr. Justice Phillimore: You say they appear something like the King's Proctor appears?

Mr. Avory replied in the affirmative. He said the case before the Tribunal depended largely on the evidence of records in the offices of the London County Council, and it was most important for the Tribunal to have those records before it.

Mr. Justice Bray: You say that the parties may be ordered to pay the costs of the Council, but that the Council cannot be ordered to pay costs?

Mr. Avory: That is so.

Mr. Justice Bray: Is not the person who appears to support the decision of the Superintending Architect "a party" to the appeal?

Mr. Avory replied his contention was that the Council were not parties to the appeal.

Mr. Justice Bray said that the Council could appear before the Tribunal by counsel and could call evidence, which was an indulgence that nobody but a party to an appeal would have.

Mr. Avory said that the Council did not appear before the Tribunal in the character of a litigant and fight the case as though they wanted to win it.

Mr. Macmorran, K.C. (for the respondents): I beg to differ entirely.

Mr. Avory said he assumed the Council appeared for the purpose of putting before the Tribunal any information which they had in their offices which might assist the Tribunal. If the Council were to be held liable for the costs of appeals for so doing the result would be that they would stop away and not run such a risk. Unless the Council had property of their own in a street it did not matter to them where the building line was.

In the result their lordships, without calling upon Mr. Macmorran, held that the Tribunal had power to order the Council to pay the costs in question, and dismissed the appeal with costs.

Leave to appeal was granted.

ACTION BY BUILDER.

THE case of Larner *v.* Berry came before Mr. Justice Ridley and a common jury in the King's Bench Division on the 10th inst., an action by the plaintiff, Mr. Gordon Larner (trading as G. Larner & Co.), a builder and contractor, to recover from the defendant, Mr. F. H. Berry, 105*l.*, the balance of an account the plaintiff alleged to be due to him for work done and materials supplied at the Ship public-house, Hanover-court, Long-acre, W.C.

The defence was that by an agreement in writing, dated March 21, 1905, the plaintiff agreed with Mr. Ernest Berry, the defendant's son, to execute the whole of the works described in a specification prepared by Mr. J. P. Choate, an architect, for certain alterations and repairs at the Ship public-house, for the sum of 975*l.*, and to complete the same on or before June 30, 1905, under a penalty of 1*l.* per day as long as the work should remain unfinished after that date. By a subsequent oral agreement made between the plaintiff and the defendant, the defendant agreed to pay the 975*l.* for the cost of the alterations and repairs in lieu of his son, Mr. Ernest Berry, under the agreement of March 21, 1905, on the condition that the plaintiff would execute the alterations, etc., under the superintendance of and to the satisfaction of Mr. Choate and Mr. C. H. Kinderkine, the architect of the first mortgagee of the Ship public-house, such sum being paid from time to time on the architects' certificates when the alterations and repairs were executed to their satisfaction and in accordance with the specification. Defendant paid 960*l.* on the certificates of the architects, but he alleged that the plaintiff had not executed the work according to the said specification nor to the satisfaction of the architects, who had refused, and still refused, to give a further certificate. The defendant further said that he had always been ready and willing to pay the plaintiff the balance of monies certified as due to him by the architects according to his agreement on the production by the plaintiff of the certificate. On or before March 29, 1906, the defendant and his architect agreed with the plaintiff the amount of the balance due for the work executed, including the extra works alleged to have been executed by the plaintiff at the sum of 105*l.*, but subject to the express condition that the plaintiff should not be paid that sum until after the completion of certain works required to be done to carry out the provisions of the said specification and the production of the certificate of the architects to that effect. Defendant alleged that the plaintiff had not completed the alterations to the satisfaction of his architects, and that the work was not completed on June 30, 1905. He said the plaintiff's workmen left the premises about September 20, 1905, and he claimed 82*l.* from the plaintiff by way of penalty and as agreed damages under the agreement of March 21, 1905. The defendant denied that he was indebted to the plaintiff in the sum of 105*l.*, and counterclaimed for damages for delay and non-completion of the works.

The plaintiff, in reply to the counter-claim, denied that time was of the essence of the contract, and that defendant was entitled to any damages for any delay in completing the work, and he also contended that no claim would lie against him by the defendant for estimated loss of trade, and that the damages for alleged loss of trade were too remote.

After hearing the evidence the jury awarded the plaintiff 85*l.* on the claim, and returned a verdict also for him on the counter-claim, and judgment was entered accordingly with costs.

Mr. E. G. Palmer appeared for the plaintiff, and Mr. J. P. Oliver for the defendant.

SPECULATIVE BUILDING AT WIMBLEDON.

MR. JUSTICE SWINFEN EADY, in the Chancery Division, on the 10th inst., concluded the hearing of the case of Cree *v.* Stone, an action by the plaintiff, a mortgagee in possession of ten houses, being Nos. 61 to 79, Oxford-avenue, Wimbledon, against the defendant, Mrs. Mary Jane Stone, for a decree of specific performance of a contract to purchase them for 2,325*l.*, entered into by the defendant with the plaintiff's agents, Messrs. Daw, Saville, & Co., a firm of surveyors, such contract being dated May 11, 1906.

The defendant pleaded that she was induced to enter into the contract by misrepresentation, and counterclaimed for rescission of the contract, and the return of the deposit she had paid with interest.

It appeared that the defendant saw an advertisement in the *Daily Telegraph*, of May 1, 1906, as follows:—"Wimbledon. Mortgagee's Sale. Ten houses, splendidly built. Let on agreements 36*l.* per annum each, full lease; g.r. 5*l.* each. Will sell to realise mortage, viz., 2,500*l.*; would let 1,900*l.* remain.—Apply Daw, Saville, & Co., 27, Chancery-lane, W.C." The defendant wrote to Messrs. Daw & Co. *re* the advertisement, and her case was that she received a reply repeating the particulars with the exception that the amount of the ground rent was corrected to 5*l.* 5*s.*, and stating that the houses were exceptionally well built. The defendant then asked her daughter-in-law to inspect the property, and later the two ladies met in London and saw Mr. Daw at his office on May 11, 1906. Defendant alleged that at that interview she informed Mr. Daw that if the drainage was in good order and the houses in good repair it might suit her to purchase. Mr. Daw, she said, informed her that the drainage was perfect, and that no expenditure on repairs would be needed for years, and the price was then fixed at 2,325*l.*, and the contract signed, and a deposit of 100*l.* was paid. The plaintiff denied that any misrepresentation had been made, and generally traversed the defendant's allegations.

Mr. Micklem, K.C., and Mr. A. C. Clauson appeared for the plaintiff, and Mr. Eve, K.C., and Mr. R. H. Hodge for the defendant.

Mr. Micklem, having opened the plaintiff's case, called his client, who stated that the transactions were in the hands of Messrs. Daw & Co., who never brought to his knowledge written complaints as to the drainage and other matters.

Mr. Daw, of Messrs. Daw, Saville, & Co., said his firm acted for the plaintiff in the development of the land at Oxford-avenue. It was on his certificates that advances were made to the builders by Mr. Cree. He took possession of the property and let the houses.

Witness, cross-examined, said he acted for the freeholder throughout in this matter. He began advertising the houses to let at 28*l.* That went on for probably three weeks. At the time certain agreements were entered into he advertised the houses at 3*l.* per month. Shown a newspaper file, Mr. Daw read an advertisement therein offering to let the houses at 2*l.* 5*s.* a calendar month. From his ledger it appeared that as early as January, 1905, he was endeavouring to let this property. He received instructions to sell the property in February or April, 1906.

Counsel read a number of notices by tenants to leave, and the witness admitted that of the ten houses there were only four which were not under notice on May 3.

If you had been asked at this time whether the drainage was in good order, what would you have said?—I should have said that we could not guarantee the drainage, but that it had been passed by the district council.

Did you believe it to be perfect?—As far as the construction,—yes.

Mr. Daw admitted, with reference to one house, there was a complaint after Easter, 1906, and that Mr. Saville went down, but he did not hear that the ground was opened on that occasion and the drain found defective. He thought the houses were splendidly built, having regard to the class of property.

Do you think that any person willing to pay 27*l.* a year would go into a house with two sitting-rooms when the wall of one of them was soaked with sewage?—If such was the case, I should hardly expect it.

Suppose that in any other house the walls were damp to the extent of the paper falling off the walls, would that be a description of a splendidly-built house?—I hardly think so.

The witness, further examined, admitted that the statement in the advertisement that the houses were let at 36*l.* was not quite accurate, but that sum was merely inserted for brevity and did not materially alter the ultimate income. He did not think he told Mrs. Stone that the houses were splendidly built.

Mr. Saville and other witnesses having given evidence in support of the plaintiff's case.

Mr. Eve, having opened the defendant's case, called his client, who gave evidence to the effect that Mr. Daw told her that the drains were perfect, and that she need not trouble about the repairs as they never had any complaints since they took over the houses. Mr. Daw also told her that the drainage of the houses was perfect. She repudiated the contract because the houses were not splendidly built and the drains were not in good order.

Mrs. Janette Stone corroborated the evidence of the last witness.

The tenants of Nos. 63 and 69, Oxford-avenue, gave evidence as to stoppages having occurred in the drainage during their tenancies.

Mr. E. H. Blake, F.S.I., gave evidence that the houses in question were the worst example of speculative building he had ever seen. He valued the whole block at about 1,570*l.*

His lordship, in giving judgment, said that no personal charge was made by the defence against the plaintiff who was not privy to the misrepresentations made, and who if he had to suffer by the result of the action would do so from the fault of his agents and without incurring any discredit to himself. Referring to the evidence, his lordship said the whole scheme was sheer trickery, and he did not wonder that the defendant and her daughter-in-law had been taken in by it, for it was most misleading, most unfair, and most untrue. As to what took place at the interview there was great conflict, but having looked closely into the evidence, he held that the account given by the defendant and Mrs. J Stone was true, and that Mr. Daw's, where it differed, was not to be relied on. Material misrepresentations had been made as to the rentals and outgoings, and also as to the drainage and the state of repairs. It was clear that the houses were very badly built, even for speculative building, both as to brickwork, woodwork, and otherwise. The drainage was also defective. It was clearly impossible for the defendant to have discovered by reading the tenancy agreements that any rent but 36*l.* a year was payable, and this was the chief misrepresentation relied on. The action must be dismissed with costs, and there would be judgment for the defendant on the counterclaim with costs, besides the costs of investigating the title.

CASE UNDER THE BRADFORD IMPROVEMENT ACT.

THE case of Smith and another *v.* Greenwood came before the Divisional Court of King's Bench, consisting of the Lord Chief Justice and Justices Darling and Phillimore, last week, on the appeal of Messrs. W. & A. T. Smith, the owners of seven houses in Southfield-lane, Bradford, against a decision of the stipendiary magistrate at Bradford convicting the appellants for not having complied with a notice to provide water-closets and ashpits in the houses given by the Town Clerk of Bradford under the Bradford Improvement Act.

From the special case which had been stated it appeared that the houses were a row of cottages which were without sanitary conveniences of a construction or size approved by the Corporation of Bradford. Apart from the question of the right of the Corporation to insist upon the construction of water-closets for each house, however, the sanitary provision was sufficient for the accommodation of the row. Notice was served on June 30, 1906, upon the appellants requiring them to erect water-closets and ashpits for each of the houses, and specifications of the water-closets and ashpits required accompanied the notice. It was contended by the solicitor for the appellants that the notice and summons was *ultra vires* because the notice specified the exact manner in which the water-closets and ashpits were required to be built, and gave no opportunity to the appellants to submit their own plans for the approval of the Corporation, which they were bound to do under the provisions of the Public Health Act. On the other hand, it was contended on the part of the respondent that the information was laid not under the Public Health Act, but under the Bradford Improvement Act, the language of which required the owners of property to comply with the requirements of the sanitary authority "as in such notice shall be stated," and therefore that the Corporation was entitled to require a special kind of water-closet, etc., to be constructed. In addition to the conviction and fine by the stipendiary, it was stated that the appellants were further liable to a continuing penalty of 5*l.* per day so long as they were in default.

The Lord Chief Justice, in giving judgment, said the Corporation Act was a penal one, and perhaps therefore there ought to be some hesitation in interpreting its words with too great strictness. On the other hand, the Court must take care that local authorities were not hampered in carrying into operation Acts which were intended to administer to the health of the population. He was of opinion that the section under which the respondent instituted the prosecution gave the local authority for obvious reasons more power than was conferred under the Public Health Act, and the appeal must be dismissed with costs.

Justices Darling and Phillimore concurred.

Patents of the Week.

APPLICATIONS PUBLISHED.*

20,270 of 1906.—T. W. FREEMAN : *Ventilators.*

This relates to a ventilating device, consisting of an external casing closed at the top and bottom and ends, a series of louvre plates arranged at both sides of the apparatus and of a fixed or adjustable character and a plurality of rows of separately arranged slotted plates having the slots at right angles to the openings between the louvres so as to cause the air passing through th apparatus to take a sinuous course, such plates being fixed or removable from the main casing and having plain or roughened surfaces.

24,107 of 1906.—A. JACOBSON and R. E. A. SVENSSON : *Safety Locks.*

This relates to a safety lock in which the releasing plate is formed with a curved or cam-shaped portion adapted to slide over a fixed projection of the lock casing and with a notch for engagement by the operating pin of the lock-actuating member.

28,426 o 1906.—J. MAJOR : *Door Locks.*

This relates to a lock and key, and consists in the combination of the lock bolt, a spring-actuated detent engaging said bolt, a lug upon said detent extending into the path of the key, a spring-actuated arm carrying a locking dog also engaging said lock bolt, said detent with its lug, and said arm with its dog, constituting movable locking members, a slotted cylinder disposed between said lug and spring-actuated arm, and a key member adapted to enter said cylinder, having wings which extend through the slots therein and simultaneously engage said arm and the lug of the detent to release the lock bolt, one wing member being also adapted to engage said bolt.

27,464 of 1906.—J. E. EVANS-JACKSON (CUMMINGS MACHINE COMPANY) : *Screw-threaded Tubes.*

This relates to a screw-threaded tube having its wall tapered at the end and a forged-up tapered screw thread upon said end, the convolutions of the bottom of the threaded groove being of gradually diminishing radius and the tube wall along the path of said groove bottom having a forged-up reinforcement.

28,851 of 1906.—C. E. SMETHURST : *Appliance or Means for enabling Doors to be secured Ajar, applicable also to Windows.*

This relates to an appliance for enabling doors to be secured ajar, consisting of a bolt attached to the door and having a web formed between the abutments a hinged or pivoted locking latch attached to the fixed frame of the door, the latch having a gap leading into a slot formed with one or more notches, which gap enables the abutment on the bolt to pass so that the latch can slide on the web between the abutment, and the notches locking the latch on the web, and thus enabling the door to be locked ajar at one or more defined degrees of opening.

29,474 of 1906.—T. FIHELLY : *Hot-water or Steam Heating Apparatus.*

This relates to a heating-apparatus, comprising a suitable shell or case, and consists in the combination of a heat-resisting diaphragm contained therein, which is located a short distance below the top wall, and which forms a compartment at the upper end of the shell or case, and also a passage for the products of combustion, a plurality of water tubes contained in said shell or case, the endmost water tubes of the set consisting of a plurality of horizontal pipes connected together by return bends and extending from the bottom of the fire-pot to the top of said compartment, and intermediate water tubes, consisting of a horizontal pipe, at the bottom a vertical pipe connected to it, and a plurality of horizontal pipes connected together by return bends, and connected to the upper end of said vertical pipe and extending also to the top of said compartment, a horizontal pipe or reservoir within the shell or case to which the lower ends of all said water tubes are connected and a horizontal pipe or reservoir at the top of the shell or case to which the upper ends of all of said water tubes are connected, a damper located in the passage for the products of combustion and a flue pipe leading from said passage.

376 of 1907.—E. B. A. BARNETT : *Locks.*

This relates to a lock having a series of "tumblers" adapted to be operated in one direction to permit movement of the bolt by an equal number of key-actuated auxiliary levers, and be returned to normal position by a key-actuated main or "great" lever, a stationary shield or shields being interposed between the keyhole and the series of tumblers.

1,907 of 1907.—J. LEVICK : *Flushing rings of Railway-carriage and other Closets.*

This relates to flushing rings for railway-carriage and other closets, and consists in the employment of a series of separated jet boxes or nozzles on the underside of and in communication with the interior of said ring, said jet boxes having closed rear ends and open forward ends, the open ends of each being opposed to the closed rear end of the one preceding.

2,951 of 1907.—W. J. BRETT : *Flushing Cisterns and the like.*

This relates to a flushing cistern and the like, and consists in the combination with an enclosed cistern of a tubular casing communicating on the one hand with the supply pipe from the main, and on the other hand with the interior of the cistern, and a piston operated by the delivery valve rod to cut off the supply of liquid to the cistern immediately the flush commences and while it continues.

4,145 of 1907.—J. B. MARLEY : *Roofing Tiles.*

This relates to an interlocking tile having on its face a flat portion at its upper end, and immediately below said flat portion a deep recess between the side edges, which recess extends to the lower edge of the tile, and a generally flat back, and consists in the forming of the flat upper portion slightly bevelled or inclined with relation to the main part of the tile.

4,794 of 1907.—F. E. GOLDSMITH : *Tile Coating Machines.*

This relates to a coating apparatus, and is characterised by the presence of a coating roll and device for conveying the tile over the roll and withdrawing the end of the tile from the roll at a point comparatively free from coating material.

14,001 of 1906.—C. CZARNIKOW : *Means for the Manufacture of Substances having Isolating or Insulating Properties.*

This relates to a method of manufacturing isolating substances, and is characterised by treating a suitable material or materials in a comparative vacuum and simultaneously or at the same time heating and pressing same.

17,396 of 1906.—M. BAADER, SEN. : *A Machine for Levelling the Ground.*

This relates to a meadow plane on wheels for levelling uneven fields and meadows, comprising two converging cutters arranged on runners, chutes provided behind said cutters, a tilting collector board receiving material loosened at the cutters from said chutes, and harrows arranged beneath the said collector board.

21,631 of 1906.—C. A. P. TURNER : *Steel Skeleton Construction for Concrete Building.*

This relates to a construction for builidngs, comprising a floor formed of a flat slab, and supported by columns, the arrangement being such that the slab is reinforced by groups of rods or wires extending directly and diagonally from column to column and from support to support.

24,748 of 1906.—W. J. SWAIN : *Reinforced Concrete.*

This relates to the reinforcing of solid concrete with a system of metal tubes and sockets framed together with vertical or oblique transverse tubular dies and struts in order to dispense with over rings, straps, links, hoop-iron hangers, stirrups, and the like.

24,829 of 1906.—A. METZ : *Pavings, Floorings, and the like.*

This relates to pavings, floorings and the like, comprising a layer of asphalt mixed with porous rough stony material in granular or finely broken condition, and consists in the incorporation therewith of carbonundum, carbide of boron, or corundum emery, or a mixture of these substances or of their derivatives in pulverulent or granular condition.

12,400 of 1906.—A GRAY : *Construction of Fire-proof Flooring, Roofing, and the like.*

This relates to the construction of fireproof flooring, roofing, and the like, and consists of forming and fitting shaped sectional blocks or the like, preferably hollow, as to cover or fit when built by the lower flanges the upper flanges, and the intermediate web of the joint or the like said sectional blocks forming in combination with floor slabs and ventilating and plain ceiling slabs the ventilating duct.

12,413 of 1906.—A. J. BOULT (J. A. FERGUSON) : *Presses Particularly Applicable for Use in Moulding Building Blocks, and the like.*

This relates to a press comprising a pair of sliding or reciprocating heads, pressure rods connecting said heads, a sliding presser head, mounted between said sliding heads, and means for drawing one or other of said sliding heads and the said presser head together.

8,904 of 1906.—E. G. PERROT : *Fastening Devices for Use in Building Constructions, and the like.*

This relates to a fastening device for building constructions by means of which a main element may be held in definite relation to the moulds, and consists in the provision of a socket member, the upper end of which is adapted to securely engage with any desired reinforcing member by means of studs, bolts, or like connexions.

13,664 of 1906.—W. B. HEAP : *Means for Packing and Advertising Tiles, Slabs, and the like, and also indicating the Number Packed.*

This relates to a protective or packing means for use in connexion with the transit of tiles, bricks, and like earthenware goods, consisting of lengths of cushioning media mounted upon or carried by suitable carrier lengths and folded longitudinally at right angles so as to come between the opposed ends and sides of the articles in adjacent rows or packs.

14,113 of 1906.—J. S. EWART : *Locks.*

This relates to locks for safes, doors, and the like, in which the bolt of the lock is coupled directly to the handle, and which are provided with a pivoted or sliding catch for holding the bolt in its in or out position. In this invention this catch is operated by an electro-magnet, and when so operated the bolt can be moved by the handle.

19,067 of 1906.—E. S. N. KARSLAKE : *Spring Catches for Scaling Ladders.*

This relates to spring catches for scaling ladders. The spring catch is made from spring brass, and is attached to the inside of scaling ladder by screws. At the top is a catch for holding upper ladder socket when shipped for use. The catch is fixed close to the upper part of the ladder and automatically catches over the lower socket to the previous ladder being raised, and on each ladder in succession until the necessary height is attained. To strike ladders the attendants grip the side of the ladder with one hand and the lower round of the ladder with the other hand and release the spring catch by means of the leather strap which is fixed at the top of the spring catch and is released by the slight use of either hand.

19,077 of 1906.—J. VORRABER : *Moulding Press.*

This relates to a moulding press in which the moulds carried by a table are suddenly filled by a screw worm actuated by a spring, and is characterised in that the press worm, which moves in its longitudinal direction, is pressed back after closing the mouth of the mould by the cutter, by the resistance of the moulding material which is filled in the mouthpiece of the screw worm, whereby the press worm, which is left depressed by a spring or spring and a weight and the like which may be arranged over the worm, suddenly fills the mould with the moulding material at the instant the cutter is drawn back by it, by which progressive manner of compression of the moulding material by the worm screw air blisters are expelled therefrom.

20,104 of 1906.—W. S. WHITE : *Flushing Valves.*

This relates to a flushing apparatus, and consists in the combination with a reservoir in connexion with a constant water supply, and provided with an inlet and an outlet for the water both situated at the lower end of the reservoir and in proximity to one another, of a float valve upon its lower end and adapted to be moved in the reservoir so as to control the passage of water from the inlet and also from the reservoir to the flushing pipe, a perforated tubular stem depending from the float valve and serving to enable the air to be withdrawn from the interior of the valve, and means for raising the valve.

29,577 of 1906.—C. J. AKINS, G. W. SHERK, and B. W. GRAHAM : *Flushing Tanks.*

This relates to a flushing tank, and consists in the combination of a tank, a water outlet therefor, a valve-seat in the bottom of said tank, a guide adjacent to said seat, a valve stem slidable in said guide, a valve upon said stem to co-act with said valve, means for manually elevating the lower end of said valve stem, a slotted tubular guide for the upper end of said valve stem, a shoulder formed upon the upper end of said valve stem, an overbalanced pivoted dog adapted to project through the slot in said slotted guide, a loop upon said dog, a lug projecting from said slotted guide, a trip pivoted upon said lug and having one end engaged with said loop and its other end projecting above said valve stem, a centrally-disposed air-valve in the top of said tank, and a float in said tank adapted to actuate said air-valve and said trip.

PATENTS.—*Continued on page 618.*

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvi.; Auction Sales, xxviii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

SEPTEMBER 2.—**Gothenburg.**—QUAY AND WHARF.—At the request of the T.C., the Harbour Board of Gothenburg invite entries to the International Prize Competition for plans for quay and wharf constructions in the proposed new freight harbour at Sannegardsviken, Gothenburg. Regulations and survey charts may be obtained by sending in an application, together with 10 Swedish crowns, to Göteborgs Stads Byggnadskontor, Marten Krakowkatan No. 5, where further information may be obtained from the Secretary.

NO DATE.—**Heswall.**—SCHOOL.—The Cheshire C.C. (Hoylake and West Kirby Administrative Sub-Committee for Education) invite competitive designs for a new Elementary School to be erected at Heswall, to provide accommodation for 300 children. Conditions and instructions to competing architects may be obtained upon written application to Mr. John H. Grundy, Clerk to the Administrative Sub-Committee, District Council Offices, Hoylake.

NO DATE.—**Macduff, Banff.**—HYDROPATHIC ESTABLISHMENT.—The Administrative Body, Duff House, Banffshire, being advised of the suitability of the mansion and adjacent grounds for adaptation to the purposes of a hydropathic establishment, are prepared to receive and consider plans and suggestions for effectuating the provision of such establishment, with the incorporation therein of the mansion, together with estimates of the probable cost. The Administrative Body, in the event of their resolving to carry out by themselves, or under arrangement with others, any plan of which they may approve, will provide that the architect submitting the same be appointed architect of the works on the usual terms. For further information application may be made to the Town Clerk of Banff or to the Town Clerk of Macduff.

Contracts.

BUILDING.

MAY 20.—**Bawnboy.**—DISPENSARY AND DISPENSARY RESIDENCE AT NEWTOWNGORE.—The Guardians invite tenders for the erection of the dispensary, etc., in accordance with the plans and specifications prepared by Mr. O'Brien, C.E., and which may be inspected at office of Mr. Michael Bannon, Clerk of the Union, Clerk's Office, Board-room, Bawnboy.

MAY 20.—**Glenlivet.**—BUILDINGS.—Mason and carpenter works of the following buildings, and for the slater work of No. 1:—(1) New milkhouse and repairs to gamekeeper's house, Sheandhu, Glenrinnes; (2) repairs to stable, Tomnalienan, Glenlivet; (3) ditto dwelling-house, Millbank, ditto; (4) ditto Byres, Nether Clashnoir, ditto: (5) ditto offices, Glenmullie, Strathavon; (6) cart sheds, granary, and men's room, Achgourish, Kincardine. Plans and specifications may be seen at the Estate Office, Drumin, Glenlivet, or with Mr. A. Thomson, architect, Fife-Keith.

MAY 20-JUNE 5.—**Hayward's Heath.**—BOILER WORKS.—Brighton County Borough Asylum, Hayward's Heath, Visiting Committee invite tenders for removing the old boilers, pulling out seatings, flues, and foundations, constructing new foundations, seatings, and flues, and alterations to and enlargement of the present boiler-house and engine-house. Plans, etc., can be seen, and bills of quantities and form of tender obtained, on application at the offices of the Surveyor to the Asylum, Mr. J. G. Gibbins, F.R.I.B.A., of the firm of Messrs. J. G. Gibbins & Son, architects and surveyors, 3, Palace-place, Brighton. A deposit of 2*l.* 2*s.* required.

MAY 20.—**Llantwit Major.**—FARMHOUSE.—For taking down a farmhouse and buildings and the erection of a new farmhouse and set of buildings on the St. Donat's Estate, Llantwit Major, Glam. Plans, specifications, and bills of quantities can be seen at offices of Mr. M. Ogilvy Spence, Aberpergwm Estate Office, Glyn-Neath, Glam.

MAY 20.—**Lochgelly.**—RECONSTRUCTION.—The mason and brick, joiner, plumber, slater, plaster, and painter works in connexion with the proposed reconstruction of the Victoria Bar, Church-street, Lochgelly, for Mr. D. Paton. Plans can be seen, and schedules of quantities obtained, on application to Mr. T. Hyslop Ure, architect, 43, Carnegie-street, Dunfermline.

MAY 20.—**Tantobie.**—HOUSES.—Tantobie Co-operative Society, Ltd., invite tenders for the erection and completion of fourteen houses at Tantobie (walls brick). Drawings, specifications, and conditions of contract may be seen, and forms of tender obtained, at the architect's office, 22, Durham-road, Blackhill.

MAY 21.—**Ashton-under-Lyne.**—PORTER'S LODGE.—The Guardians invite tenders for the erection of a porter's lodge at the new hospitals. Specifications and quantities to be obtained from Messrs. John Eaton, Sons, & Cantrell, architects, Stamford-street, Ashton-under-Lyne, after payment to Mr. G. H. Partington, Clerk to the Guardians, Poor-law Offices, Ashton-under-Lyne, of the sum of 2*l.* 2*s.*

MAY 21.—**Consett.**—SCHOOL.—Tenders invited for new Council school at Consett. Plans, specification, and general conditions of contract can be seen, and bills of quatities obtained, at the office of Mr. W. H. Knowles, architect, 25, Collingwood-street, Newcastle-on-Tyne.

MAY 21.—**Wolverhampton.**—WORKS AT WORKHOUSE.—Wolverhampton Guardians invite tenders for certain work at their Workhouse, Heath Town, in connexion with the excavation of the present foundations of the boiler-house, and the laying of a new foundation for four boilers, including the necessary removal of the boilers, and their refixing, etc. Forms of tenders, together with a specification of the work, may be obtained from Mr. Frank Harrison, Clerk to the Guardians, Union Offices, Wolverhampton.

MAY 22.—**Ballymoney.**—COTTAGES.—Ballymoney R.D.C. invite tenders for the erection of cottages. The deposited maps and plans, specifications, and draft contract may be inspected in the offices of Mr, T. B. Hamilton, Clerk of the Ballymoney R.D.C. Form can be obtained at the said office.

MAY 22.—**Cheltenham.**—REPAIRS AT WORKHOUSE.—Cheltenham Guardians invite tenders for certain repairs at the Workhouse, Cheltenham, according to a specification, which may be seen on application to Mr. Thos. Malvern, architect, 21, Winchcombe-street, Cheltenham.

MAY 22.—**Golcar.**—MISTAL.—Various trades required in the erection of a twelve-stall mistal at Westwood Edge Farm, Golcar. Plans may be seen, and quantities obtained, at office of Mr. Arthur Shaw, architect, Golcar.

MAY 22.—**Liscard.**—TRAMCAR-SHED.—The Tramways Committee of the Wallasey U.D.C. invite tenders for extension of car-shed, Seaview-road, Liscard. Specification and drawings may be seen, and further particulars obtained, on application to Mr. W. H. Travers, Engineer and Surveyor, Public Offices, Egremont, Cheshire. Quantities will be supplied for the sum of 2*l.*

MAY 22.—**Milnsbridge.**—HOUSE.—Works (masons' excepted) required in the erection of a dwelling-house at Cowlersley, Milnsbridge. Plans may be seen, and quantities obtained, at offices of Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

MAY 22.—**Mirfield.**—CLUB ROOMS.—The erection of new club rooms at Upper Hopton, Mirfield. Plans may be seen, and bills of quantities obtained, at office of Mr. J. Berry, architect, surveyor and valuer, 3, Market-place, Huddersfield.

MAY 22.—**Peterston-super-Ely.**—VESTRY.—The erection of a vestry on Croes-y-Parc Chapel Ground, Peterston-super-Ely, near G.W.R. Plans and specification can be seen at the office of Mr. J. G. Harold Bird, C.R.S.I., High-street, Cowbridge.

MAY 23.—**Elgin.**—ADDITIONS.—Mason, carpenter, slater, plumber, plaster, and painter works of additions to property, 181, High-street. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin.

* MAY 23.—**Henley.**—CHURCH—Tenders are invited for erection of Congregational Church, with tower, at Henley-on-Thames. For further particulars see advertisement in this issue.

MAY 23.—**Preston.**—STORES AND HOUSES.—The erection of branch stores and four houses at Tardy Gate, near Preston. Drawings and specification at the offices of Mr. Munford, architect, 12, Guildhall-street, Preston, where bills of quantities may be procured on payment of 2*l.* 2*s.*

MAY 23.—**Uffculme.**—SCHOOL WORKS.—Devon County Education Committee invite tenders for drainage works, alterations, and repairs, etc., at the Uffculme Council school. The drawings, etc., may be seen at the school. Forms, etc., can be obtained at the school.

MAY 23.—**Warrington.**—SHELTER.—Warrington Town Hall, Parks, and Baths Committee invite tenders for the erection of a shelter in Bank Park. Drawing, specification, and quantities, and all further information may be obtained at the office of the Borough Surveyor, Town Hall.

MAY 24.—**Farsley, Leeds.**—REBUILDING MANSE.—The trustees of the Farsley Baptist Church, Farsley, near Leeds, invite tenders for the rebuilding of the Manse, Farsley. Plan and conditions of contract may be seen at Rehoboth Chapel, Bagley.

MAY 24.—**Glasgow.**—EXTENSION OF FRUIT, ETC., MARKET.—The Corporation of Glasgow invite tenders for the execution of the following works, viz.:—(1) Digger, mason, and brick; (2) carpenter and joiner; (3) cast-iron and steel; (4) plumber; (5) slater; and (6) tile, required in connexion with the extension of the fruit, etc., market. Specifications and forms of tender can be obtained on application at the office of Public Works, 64, Cochrane-street.

MAY 24.—**Jordanstown.**—ALTERATIONS, ETC., TO CHAPEL.—For the carrying out of alterations and additions to chapel at Jordanstown, Co. Meath, for the Very Rev. Thomas Gilsenan, P.P. Plans and specification are to be seen at the offices of the architect, Mr. Thomas F. McNamara, 50, Dawson-street, Dublin, and at St. Michael's, Enfield, Co. Meath.

MAY 25.—**King's Lynn.**—COTTAGES.—The erection of a pair of cottages, with out-offices complete, on St. Mary's Estate, for Messrs. J. & D. Stubley. Plans and specification can be seen, and all particulars obtained, upon application at the offices of the architect, Mr. Louis F. Eagleton, King-street, King's Lynn.

MAY 25.—**Merthyr Tydfil.**—LIBRARY.—For the erection of a free library at Perrott-street, Treharris. Plans and specification of the proposed building may be inspected, and a copy of the bills of quantities obtained, from Mr. W. Dowdeswell, architect, Treharris, upon payment of a sum of 1*l.* 1*s.*

MAY 27.—**Astwood Bank.**—STABLING.—Stabling, etc., at Astwood Bank, for the Alcester Co-operative Society, Ltd. Plans and specifications can be seen at the office of Mr. Bernard Perrins, Central-chambers, Redditch.

MAY 27.—**Briton Ferry.**—SCHOOL.—The Glamorgan C.C. invite tenders for the erection of a new school at Briton Ferry. Plans and specification may be seen, and copies of the bills of quantities obtained, at the Briton Ferry Police-station, and at offices of Mr. T. Mansel Franklen, Clerk of the Glamorgan C.C., Glamorgan County Offices, Westgate-street, Cardiff.

MAY 27.—**Darlington.**—SCHOOL.—Darlington B.C. invite tenders for the erection of a new school to accommodate 420 children in Corporation-road. Plans and specification may be seen, and bill of quantities and form of tender obtained, at the offices of Mr. George Winter, Borough Surveyor and Waterworks Engineer, Town Hall, on depositing a cheque for 2*l.* 2*s.*

MAY 27.—**Darlington.**—SETTING BACK CHURCH.—Darlington Corporation invite tenders for setting back the south-east corner of St. Hilda's Church, Park-gate, and rebuilding the boundary wall, etc. Plans and specification may be seen, and bill of quantities and form of tender obtained, at the offices of Mr. George Winter, Borough Surveyor and Waterworks Engineer, Town Hall, on depositing a cheque for 2*l.* 2*s.*

MAY 27.—**London.**—WHARF WORKS.—The Finsbury B.C. invite tenders for works to buildings, etc., at Bull Stairs Wharf, Upper Ground-street, S.E. The drawings, etc., may be inspected at the offices of Messrs. Gilbert & Constanduros, 43, Finsbury-square, E.C., and copies of the bills of quantities and forms of tender may be obtained on application at the Borough Surveyor's Office, at the Town Hall, and on payment of 5*l.* 5*s.*

MAY 27.—**Wakefield.**—ALTERATIONS TO RATES OFFICES.—Wakefield Corporation invite tenders for making certain alterations to the rates offices in the Town Hall, the providing and fixing of a new window in the south-west external wall thereto, a new oak desk, etc. Drawings, specification, and conditions may be seen, and forms of tender obtained at the City Surveyor's Office.

MAY 28.—**Bedlinog.**—HOUSES.—The erection of twenty-four or more dwelling-houses at Bedlinog for the Bedlinog Workmen's Building Club. Plans and specifications can be seen, and full particulars obtained, at the Architects' Office, Station-road, Nelson, Glam.

MAY 28.—**Hull.**—ALTERATIONS, ETC., TO HOTEL.—North-Eastern Railway Directors invite tenders for alterations and additions to hotel, stock-rooms, motor garage, etc., Paragon Station, Hull. Plans and specification may be seen upon application to the Manager, Station Hotel, Hull, and further information and quantities obtained from Mr. William Bell, the Company's Architect at York, where duplicate plans may also be seen.

MAY 29.—**Brighton.**—EXTENSION OF RACE STAND BUILDINGS.—The erection of an additional building for police and medical accommodation at the Brighton Race Stand. The specification and form of tender may be obtained on application at the office of the Borough Surveyor, at the Town Hall, Brighton.

MAY 29.—**Cwm.**—POLICE-STATION.—The Standing Joint Committee invite tenders for the erection of a police-station at Cwm. Plans and specification may be seen at the office of Mr. William Tanner, F.S.I., County Surveyor, and a copy of the quantities obtained on payment of 1*l.* 1*s.*

MAY 29.—**Leyland.**—FIRE-STATION, ETC.—Leyland U.D.C. invite provisional tenders from Leyland builders and contractors for erecting and completely finishing a fire-station, depôt buildings, stock yard, and other works on their Church-road Estate, Leyland. The drawings may be inspected, and specification, conditions, and form of tender obtained, by application to the Surveyor to the Council, Mr. M. H. Wilkinson, Public Hall Buildings, Leyland.

MAY 30.—**Falmouth.**—HOTEL.—The erection of a new hotel at Falmouth. Drawings and specifications to be seen at the office of Mr. Alfred J. Cornelius, architect, Truro.

MAY 30.—**Sheffield.**—TRANSFORMER SUB-STATION.—Sheffield Electric Light Committee invite tenders for the supply of materials and erection of a transformer sub-station in Rockingham-lane, Sheffield. General conditions of contract and drawings at the offices of Mr. S. E. Fedden, General Manager and Engineer, Corporation Electric Supply Department, Commercial-street, Sheffield, from whom specifica-

tions, bill of quantities, and form of tender may be obtained on making a deposit of 1*l.* 1s.

MAY 31.—**Merthyr Tydfil.**—ADDITION TO INFIRMARY.—Merthyr Tydfil Guardians invite tenders for the erection of an addition to the Infirmary at the Union Workhouse, Merthyr Tydfil. Plans and specification may be seen, and bills of quantities obtained, at the offices of the architect, Mr. Thomas Roderick, Clifton-street, Aberdare.

MAY 31.—**Silk Willoughby.**—RESTORATION OF CHURCH.—The restoration of Silk Willoughby Church, near Sleaford. Plans and specification to be seen on application at the rectory. Quantities can be obtained on application to Mr. G. R. Boreham, quantity surveyor, 24, John-street, Sunderland.

✱ MAY 31.—**South Kensington.**—OFFICE.—Tenders are invited for erection of clerk of works' office at South Kensington. For further particulars see advertisement in this issue.

JUNE 2.—**Nenagh.**—ALTERATIONS, ETC.—The Directors of the Nenagh Gas Consumers' Company invite tenders for carrying-out of alterations and repairs to works, according to plan and specification, to be seen at Office of Works. (Mr. Michael Cahill, Secretary.)

✱ JUNE 3.—**Bridlington.**—FOG-SIGNAL HOUSE.—The Corporation of Trinity House invite tenders for new fog-signal house and alterations to the dwelling, etc., on Flamborough Head, near Bridlington, Yorks. For further particulars refer to an advertisement in this issue.

JUNE 3.—**Halifax.**—SCHOOL WORKS.—Halifax Education Committee invite tenders for painting and colouring, limewashing, joiners', plumbers', and cement pointing work at the various schools, and raising boiler chimney at Queen's-road School. Plans and specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, C.E., Borough Engineer, Town Hall, Halifax, on payment of the sum of 1*l.* for each set of quantities.

✱ JUNE 3.—**Harpenden.**—ADDITIONS, ETC.—The Herts C.C. Education Committee invite tenders for erection and completion of a manual instruction and cookery centre and for additions and alterations at Harpenden C.C. School. For further particulars refer to an advertisement in this issue.

✱ JUNE 4.—**Banbury.**—ENGINE-SHED.—The G.W.R. invite tenders for erection of new engine-shed at Banbury. For further particulars see advertisement in this issue.

✱ JUNE 4.—**Bethnal Green.**—ALTERATIONS.—Tenders are invited for structural and other alterations to the kitchen, dining-hall, etc., of the Workhouse, Waterloo-road, Victoria Park, N.E. For further particulars see advertisement in this issue.

✱ JUNE 5.—**Hayward's Heath.**—BOILER-HOUSE.—The Visiting Committee of the Brighton County Borough Asylum invite tenders for removing the old boilers, pulling-out seatings, flues, and foundations, constructing new foundations, seatings and fines, and alteration to, and enlargement of, the present boiler-house and engine-house. For further particulars refer to an advertisement in this issue.

✱ JUNE 11.—**Feltham.**—ALTERATIONS.—The London C.C. invites tenders for alterations to nine classrooms at the Feltham Industrial School, Middlesex. For further particulars refer to an advertisement in this issue.

JUNE 11.—**Runcorn.**—SCHOOLS.—Cheshire C.C. (Runcorn Urban District Administrative Sub-Committee for Education) invite tenders for proposed new Council Schools, Balfour-road, Runcorn. Plans may be seen, and bills of quantities obtained, from Mr. John Lightburn, Clerk to the Sub-Committee, Education Offices, Town Hall, Runcorn, on deposit of 2*l.* 2s.

JUNE 14.—**Bristol.**—SUB-STATIONS.—Bristol Electrical Committee invite tenders for the construction of the following sub-stations:—(1) Oldfield-road, Hotwells; (2) Chalks-road, St. George; (3) Cowper-street, St. George; (4) Cloud's-hill, St. George. Copies of the specification, bills of quantities, and forms of tender can be obtained from Mr. H. Faraday Proctor, City Electrical Engineer, City Electrical Engineer's Office, Temple Back, Bristol, on payment of a deposit of 2*l.* 2s.

✱ JUNE 18.—**Enfield.**—SCHOOL.—The Enfield Education Committee invite tenders for erection of a block of schools at Eastfield-road, Enfield Highway. For further particulars see advertisement in this issue.

JUNE 19.—**Ardwick.**—SCHOOL ADDITIONS.—Manchester Education Committee invite tenders from builders for the additions and alterations at the Bank Meadow Municipal School, Ardwick, Manchester. Plans may be seen, and a copy of the bills of quantities (including specification) obtained, at the Education Offices, Deansgate, Manchester, on a deposit of 2*l.* 2s.

JUNE 19.—**Strood.**—SCHOOL WORKS.—The managers of Strood Church of England School invite tenders for alterations to girls' and infants' departments. Plans and specification can be seen at office of Mr. Apsley Kennette, Correspondent, Guildhall, Rochester, and bills of quantities can be obtained on deposit of 10s. 6d.

NO DATE.—**Cork.**—REBUILDING PREMISES.—The rebuilding of premises, 74, Gerald Griffin-street, in accordance with plan prepared by Mr. J. J. Murphy, civil engineer, Watercourse Mill-road, Cork.

NO DATE.—**Fleetwood.**—SUNDAY SCHOOLS.—For proposed Primitive Methodist Sunday Schools at Fleetwood, for the Trustees. Plans and specification may be seen, and bills of quantities obtained, from Mr. F. T. Waddington, A.R.V.I.A., architect and surveyor, 10, Birley-street, Blackpool, upon depositing the sum of 1*l.* 1s.

NO DATE.—**Kingsland.**—FARMHOUSE.—The erection of a farmhouse at Kingsland, Herefordshire. Apply to Mr. W. W. Robinson, architect, Hereford.

NO DATE.—**Thurso.**—CORRUGATE IRON HOUSES.—Three new or second-hand portable houses of corrugated iron, delivered in Thurso, each containing not less than four rooms (15 ft. by 10 ft.). Offerers to submit designs and specifications with offers. Mr. Peter Keith, Ulbster Estates Office, Thurso.

NO DATE.—**Toll.**—TENEMENTS.—Five tenements of two and three apartment houses near Paisley-road, Toll. Apply to Mr. Kerr, architect, 160, Bath-street, Glasgow.

NO DATE.—**Willington.**—CHURCH.—For new Primitive Methodist Church, Oakenshaw Willington. Names to Messrs. T. E. Davidson & Son, architects, Pearl-buildings, Newcastle-on-Tyne.

ENGINEERING, IRON, AND STEEL.

MAY 20.—**Warrington.**—PUMP, ETC.—Warrington Sanitary Works Committee invite tenders for the supply and delivery at Longford Depôt of a 4-in. centrifugal pump, with suction and delivery pipes. Further particulars may be obtained from the Manager, Longford Depôt, Warrington.

MAY 22.—**Goole.**—RETORT REPAIRS.—Goole U.D.C. invite tenders for certain repairs and renewals to retort settings at the gasworks. Further information may be obtained on applicaton to Mr. T. E. Franklin, Engineer, Gasworks, Doyle-street, Goole.

MAY 22.—**King's Lynn.**—WROUGHT-IRON FENCING.—The Corporation invites tenders for the supply and erection of wrought-iron fencing to the walks. Specification and form of tender may be obtained on application to Mr. J. H. Webb, Borough Surveyor.

MAY 23.—**Cardiff.**—BOILER.—Cardiff Guardians invite tenders for the supply of one vertical hot water circulating boiler, in accordance with specification prepared by Mr. S. W. Allen, M.Inst.M.E., and conditions of contract annexed to the form of tender, to be obtained from Mr. Arthur J. Harris, Clerk, Union Offices, Queen's-chambers Cardiff.

MAY 23.—**Swansea.**—RAILS.—The Swansea Harbour Trustees invite tenders for the supply of 150 tons of Bullhead steel rails, weighing about 82 lb. to the yard, delivered free at the Prince of Wales Dock, Swansea. Mr. Talfourd Strick, Clerk, Harbour Offices, Swansea.

MAY 27.—**Eastney.**—MACHINERY.—The Portsmouth Education Committee invite tenders for the fixing of machinery and provision of belting and shafting in connexion with the fitting up of the conversion shop at Reginald-road School, Eastney. Specification, form of tender, and all necessary information may be obtained from the architect (Mr. G. E. Smith), 145, Victoria-road N., Southsea.

MAY 27.—**Edinburgh.**—WATER-PIPE WORK.—Edinburgh Corporation invite tenders for the following work at M'Donald-road Electricity Supply Station:—Steam, exhaust, and circulating water-pipe work. The specification, form of tender, etc., can be obtained from the engineer, Dewar-place Station, Edinburgh, on payment of a deposit of 2*l.* 2s.

MAY 27.—**St. Agnes.**—A STAMPS, ETC.—The Committee of West Kitty Mine, St. Agnes, Cornwall, invite tenders for the supplying and erection of a stamps, with engine and necessary plant, for the treatment of 40 tons of tinstone per day. Plans and specifications to be seen by appointment at the Account House on the mine.

MAY 27.—**Wolverhampton.**—BOILER.—The Parks and Baths Committee invite tenders for a new Lancashire boiler. Further particulars may be obtained on application at the office of Mr. George Green, Borough Engineer, Town Hall, Wolverhampton.

✱ MAY 28.—**Lewisham.**—BRIDGE RECONSTRUCTION.—The London C.C. invite tenders for the partial reconstruction of two bridges carrying Lewisham-road over the South-Eastern and Chatham Railway and over the River Quaggy. For further particulars refer to an advertisement in this issue.

MAY 28.—**London.**—CARRIAGE UNDERFRAMES.—Tenders invited for supply of:—(1) Carriage underframes, 5 ft. 6 in. gauge; (2) carriage underframes, metre gauge. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W.

✱ MAY 29.—**Southwark.**—HEATING AND VENTILATION.—The Southwark B.C. invite tenders for the heating and ventilation of the branch library at the junction of the Old and New Kent road. For further particulars refer to an advertisement in this issue.

MAY 30.—**Derby.**—PERMANENT-WAY FOR TRAMWAYS.—Derby Corporation Tramways Committee invite alternative tenders for supply and delivery of materials and construction of works in connexion with the permanent-way and electrical equipment of a portion of their authorised electric tramways. Plans may be seen, and copies of conditions, etc., relating to the permanent-way and electrical equipment, may be obtained on application to Mr. John Ward, M.Inst.C.E., Borough Surveyor and Engineer; and further information relating to the electrical equipment from Mr. T. P. Wilmshurst, M.I.E.E., Borough Electrical Engineer, on payment of the sum of 2*l.* 2s.

MAY 31.—**Valletta.**—CAST-IRON PIPES, ETC.—For the supply of cast-iron pipes and irregular castings. Tenders are to be accompanied with a deposit of 300*l.* Particulars, specification, etc., may be obtained on application at office of Mr. Wm. Casolani, Receiver-General and Director of Contracts, or to the Crown Agents for the Colonies, Whitehall-gardens, London.

JUNE 1.—**Mundesley.**—SEA WALL, ETC.—Erpingham R.D.C. invite tenders for the following works at Mundesley, Norfolk, viz.:—The construction of a sea wall and gangway approach to the beach. Plans, and specification can be inspected, and quantities obtained, at the offices of the Engineer, Mr. A. F. Scott, F.S.I., 24, Castle-meadow, Norwich, and West-street, Cromer. Also for the erection of groynes on the sea front and the repair of the outfall pipe at Mundesley. Plans and specification can be inspected at the Engineer's offices.

NO DATE.—**Hayward's Heath.**—BOILERS.—The Visiting Committee of the Brighton County Borough Asylum, Hayward's Heath, invite tenders for the supply and delivery of two steel Lancashire Boilers. The specification, general conditions, and form of tender may be obtained from Mr. James Johnston, M.Inst.C.E., 12, Bond-street, Brighton.

MISCELLANEOUS.

MAY 21.—**Portsmouth.**—ELECTRICAL BATTERIES, ETC.—For attending to and maintaining electrical batteries, instruments, wires, etc., at and in connexion with the sewage storage tanks, the Eastney Barracks, and the Eastney Pumping Station. The specification may be seen, and a form of tender obtained, at the Borough Engineer's office at the Town Hall.

MAY 22.—**Lincoln.**—REMOVAL OF WEEDS.—Lincoln Court of Sewers invite tender for the removal of weeds from the rivers Witham, Brant, and Till; also for the sludging and cleansing of the drains in the Torksey District. Names and addresses to Mr. James Thropp, surveyor, 29, Broadgate, Lincoln.

MAY 24.—**Nottingham.**—JARRAH PLANKS.—The Works and Ways Committee invite tenders for the supply of 275 loads (50 cubic ft. per load) of jarrah planks. Specification and form of tender may be obtained on applying to Mr. Arthur Brown, M.Inst.C.E., City Engineer, Nottingham, on payment of a deposit of 1*l.* 1s.

MAY 24.—**Witham.**—BOREHOLE.—The U.D.C. invite tenders for the removal of steel lining tubes from a borehole at the Waterworks. Specifications of the work may be obtained from Mr. W. P. Perkins, Surveyor to the Council, upon the deposit of 2*l.* 2s.

MAY 25.—**Seaforth.**—PICKET FENCING.—The U.D.C. of Waterloo-with-Seaforth invite tenders for works of picket fencing and gates to be fixed round Seaforth Recreation Ground, in Cambridge-road, Seaforth. Plans and specification may be seen, and bills of quantities obtained, on application to Mr. F. Spencer Yates, A.M.Inst.C.E., the Surveyor to the Council, at the Town Hall, Waterloo. The sum of 10s. 6d. must be deposited for quantities.

MAY 27.—**Eastney.**—SAW PIT.—The Portsmouth Education Committee invite tenders for the construction of a saw pit. Provision of tool racks, and timber and iron racks, cupboards, and other fittings at the conversion shop at Reginald-road School, Eastney. Specification, form of tender, and all necessary information may be obtained from the architect (Mr. G. E. Smith), 145, Victoria-road N., Southsea.

✱ MAY 28.—**Bromley.**—FURNITURE.—The Bromley B.C. invite tenders for the Furniture required for the Council-chamber in the new municipal buildings. For further particulars refer to an advertisement in this issue.

MAY 29.—**Bilston.**—SCAVENGING.—Bilston U.D.C. invite tenders for the removal of the night soil and ashes of their district for one year from June 16 next. Specification of work to be done, and conditions of contract, may be seen on application at the sanitary office daily between the hours of 4 and 5 o'clock p.m.

MAY 29.—**Southampton.**—COPPER PLATES.—The Director-General, Ordnance Survey, invite tenders for the supply of copper plates for photo-etching. Applications for forms of tender and specification should be made to the officer in charge of stores, Ordnance Survey Office, Southampton.

MAY 30.—**Lambeth.**—TIMBER.—The Council of the Metropolitan Borough of Lambeth invite tenders for the supply of 1,150 loads of West Australian jarrah timber. Forms to be obtained from the Borough Engineer, Lambeth Town Hall, Kennington Green, London, S.E.

MAY 31.—**Brighton.**—SCAVENGING.—Brighton Corporation invite tenders for the supply of men and horses, with harness, for watering and scavenging the streets, collecting the ashes. The specification and form of tender may be obtained on application at the Borough Surveyor's Office at the Town Hall, Brighton.

JUNE 1.—**South Hetton.**—TIMBER.—The South Hetton Coal Company, Ltd., invite tenders for the supply of all kinds of colliery timber from July 1, 1907, to June 30, 1908. Forms of tender, with full conditions may be obtained on application to Mr. J. R. Lambert, South Hetton, near Sunderland.

JUNE 3.—**Dublin.**—SLEEPERS.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for the supply of 25,000 10 in. by 10 in. sleeper blocks. Specification and form of tender can be obtained from the Secretary on payment of 1s.

JUNE 3.—**Ledbury.**—BURIAL-GROUND.—Ledbury Joint Burial Committee invite tenders for the laying out of the additional land at their Cemetery, building walls, and subsoil draining. Plans, sections, and specification may be seen, and bills of quantities and forms of tender obtained, on application to Mr. R. G. Gurney, P.A.S.I., Surveyor, Worcester-road, Ledbury, on deposit of 1*l.*

✱ JUNE 4.—**Southampton.**—TIMBER.—The Director-General, Ordnance Survey, invites tenders for supply of deals and matched boarding. For further particulars see advertisement in this issue.

JUNE 12.—**Seghill.**—SCAVENGING.—Seghill U.D.C. invite tenders for the removal of ashes, etc., from the houses within the Seghill Urban District from July 1, 1907, to June 30, 1908. Particulars and conditions of contract can be obtained from Mr. Thomas Spencer, Clerk, Seghill, Northumberland.

NO DATE.—**Camborne.**—SINKING SHAFT.—The Dolcoath Mine (Ltd.) invite tenders for the sinking of the Williams shaft. Plans and specifications may be seen at the offices of the company at Camborne, Cornwall; or copies thereof may be obtained on application to the Manager.

PAINTING, etc.

MAY 20.—**Blaydon.**—PAINTING.—Durham County Education Committee invite tenders for the painting and colouring of Council Schools. Applications for specifications and forms of tender may be obtained from Mr. I. G. Maguire, Dene Holme, Blaydon-on-Tyne.

MAY 20.—**Easington.**—PAINTING.—Durham County Education Committee invite tenders for painting and colouring the Murton Council Schools during the midsummer holidays. Applications for specifications and forms of tender may be obtained from Mr. J. Ward, District Clerk, Haswell, Sunderland.

MAY 20.—**Liverpool.**—PAINTING.—Liverpool Select Vestry invite tenders for the painting (according to a specification which may be seen at office of Mr. H. J. Hagger, Vestry Clerk, Parish Offices, Liverpool) of the interior of the nurses' home at the Workhouse, Brownlow Hill.

MAY 21.—**Lepton.**—PAINTING.—Painting, etc., of the Lepton Field P.M. Chapel, Lepton. Estimates to be sent in to Mr. Henry Jaggar, Grange Moor, near Wakefield, where quantities may be seen.

MAY 21.—**Warrington.**—PAINTING.—Warrington Health and Fire Engine Committees invite tenders for painting at the Fever Hospital, Aikin-street, and the Fire-station, Heathside. Specifications and all further information may be obtained at the office of the Borough Surveyor, Town Hall.

MAY 22.—**Derby.**—PAINTING.—Derby Board of Guardians invite tenders from Derby tradesmen for the painting of the exterior of the Poor Law Offices and caretaker's cottage, Becket-street. Particulars and specifications may be obtained from Mr. F. C. Coulthurst, architect and surveyor, 4, Albert-street, Derby.

MAY 22.—**Norton, etc.**—PAINTING.—Durham County Education Committee (Sedgefield District) invite tenders for painting, etc., Norton boys' and Wolviston Council schools. Specifications and form of tender may be obtained on application to Mr. James Leonard, 10, Billingham-avenue, Norton-on-Tees.

MAY 25.—**Hove.**—PAINTING.—Hove Corporation invite tenders for painting and distempering at the Hove Sanatorium, Portslade, and painting the external wood and ironwork of the Town Hall. Further particulars may be obtained at the office of the Borough Surveyor, Mr. H. H. Scott, Town Hall, Hove.

MAY 25.—**Southend-on-Sea.**—PAINTING.—Essex Education Committee (Rochford Hundred (Higher Education) Sub-Committee) invite tenders for painting and other work to Technical School, Southend-on-Sea. Specification, etc., can be seen upon application at the office of the School.

MAY 27.—**Linacre.**—PAINTING, ETC.—The Corporation of Bootle invite tenders for painting, etc., at the Linacre Hospital. Specification may be seen, and forms of tender obtained, at the office of the Borough Engineer.

* MAY 28.—**London.**—PAINTING.—The Guardians of St. Giles-in-the-Fields and St. George, Bloomsbury, invite tenders for preparing and painting the whole of the ironwork on the outside of the four blocks of the Workhouse in Endell-street, etc. For further particulars refer to an advertisement in this issue.

* MAY 29.—**Kent.**—SCHOOLS.—Tenders are invited for painting works at White Oak School, Swanley, Kent. For further particulars see advertisement in this issue.

JUNE 3.—**Halifax.**—PAINTING.—Halifax Education Committee invite tenders for painting and colouring, limewashing, joiners, plumbers, and cement pointing work at the various schools, and raising boiler chimney at Queen's-road School. Plans and specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, C.E., Borough Engineer, Town Hall, Halifax, on payment of the sum of 1*l.* for each set of quantities.

JUNE 5.—**Warrington.**—PAINTING.—Warrington Education Committee invite tenders for the painting of various schools. Specifications, and all further information, may be obtained at the office of the Borough Surveyor, Town Hall.

NO DATE.—**Usworth Colliery.**—PAINTING, ETC.—The painting and glazing of large house and shop, corner of Station-road and Edith-avenue, Usworth Colliery; also four houses. The builder, Mr. Chambers, will show the specification at the shop.

ROADS, SANITARY, AND WATER WORKS.

MAY 20.—**Boston.**—RODING OF DRAINS.—The Black Sluice Commissioners invite tenders for the roding and cotting of drains in the Black Sluice Level, between Bourne and Boston, for one year. The work will be divided into three sections. Further particulars may be obtained, and full specifications of the work seen, by personal application to Mr. F. Sanderson-Robins, 1, Dolphin-lane, Market-place, Boston, the Surveyor to the Commissioners.

MAY 20.—**Dunvant.**—WATER SUPPLY.—Swansea R.D.C. invite tenders for (1) the supply of 245 yds. of 4-in. watermains, three sluice valves, two 4-in. tee-pieces, delivered at Dunvant; (2) the work of laying 245 yds. of 4-in. watermains, fixing three sluice valves, one washout and standpipe complete, at Dunvant. Plans and specifications and conditions of contract may be inspected at the Council Offices, Alexandra-road, Swansea. Any further particulars may be obtained from Mr. T. Trevor Williams, Engineer and Surveyor, Council Offices, or from Mr. Edward Harris, Clerk, District Council Offices, Alexandra-road, Swansea.

MAY 20.—**Lochmore.**—DAMMING WORKS.—The execution of work in connection with extensive damming operations to be carried out at Lochmore, Caithness. Plans, specification of works, and schedule of quantities may be seen in Edinburgh, at 59, George-street (Keith's Advertising Agency), or at the office of Mr. Peter Keith, Factor for Ulbster, Thurso.

MAY 21.—**Bedford.**—PAVING.—The Corporation invite tenders for paving and roadmaking, in Russell-avenue, Bedford. Full particulars can be obtained upon application at the Borough Engineer's Office, Town Hall, Bedford.

MAY 22.—**Northampton.**—CATTLE MARKET PAVING.—The Corporation invite tenders for the execution of the work comprised in the granolithic paving of a cattle pen at the Cattle Market. Specification, schedules of quantities, and forms of tender may be obtained on application to Mr. Alfred Fidler, M.Inst.C.E., Borough Engineer, Guildhall, Northampton, on deposit of a cheque for 1*l.* 1s.

MAY 22.—**Plymouth.**—TRAMWAY TRACK.—Plymouth Corporation invite contracts for:—(1) Taking up and removing the old tramway track in Houndiscombe-road, and making good with macadam; (2) relaying, welding, etc., the tramway tracks at Mannamead, from Mutley Park-road to the Terminus. Plans, etc., may be seen at offices of Mr. James Paton, Borough Engineer and Surveyor, Municipal Offices, Plymouth.

MAY 23.—**Wigston Magna.**—STREET WORKS.—Wigston Magna U.D.C. invites tenders for the making-up, draining, etc., of Canal-street (length, 568 yds.), Bassett-street (300 yds.), and Dunton-street (182 yds.), South Wigston. Plans and specifications may be seen, and copies of bill of quantities with form of tender obtained, from the Surveyor at the Council's Offices, Station-road, Wigston Magna (on payment of 1*l.*).

MAY 24.—**Trebanog, Porth.**—SURFACE-WATER DRAIN.—Rhondda U.D.C. invite tenders for laying about 200 yds. of 15-in. stoneware surface-water drain at Trebanog, Porth. Plans may be seen, and specifications and forms of tender obtained, at the Council Offices, Pentre.

MAY 24.—**Wallsend.**—CEMENTING FOOTPATH.—The Corporation of Wallsend invite tenders for the cementing of footpaths or parts of footpaths in certain of the streets of the Borough as may from time to time be ordered to be done up to the end of September, 1907. Specification for the work may be seen, and particulars and forms of tender may be obtained, on application to Mr. George Hollings, Borough Surveyor, Corporation Offices, Wallsend.

MAY 25.—**Brimington.**—ASPHALTING.—Derbyshire Education Committee invite tenders for asphalting and draining, etc., at the Central Schools, in Brimington. Bills of quantities and all other particulars at the offices of Mr. W. Cecil Jackson, M.S.A., architect and surveyor, 29, Knifesmith Gate, Chesterfield.

MAY 25.—**Northampton.**—PAVING.—Northampton Corporation invite tenders for the execution of the work comprised in the granite sett paving of a portion of Abington-street, Northampton. Specifications, schedules of quantities, and forms of tender may be obtained on application to Mr. Alfred Fidler, M.Inst.C.E., Borough Engineer, Guildhall, Northampton, on deposit of a cheque for 1*l.* 1s.

MAY 25.—**Surbiton.**—ROAD IMPROVEMENTS.—The U.D.C. of Surbiton invite tenders for street widening and improvement works at Oak Hill-grove and Oak Hill, Surbiton. Drawings, etc., can be seen at the offices of the Council, and a copy of the specification and surveyor's estimated quantities obtained any day between 10 and 1 o'clock. Deposit of 10s. 6d. required.

MAY 27.—**Inveresk.**—CHURCHYARD EXTENSION.—Tenders are invited for (1) the construction of walls, etc., Contract No. 1, and (2) levelling ground and constructing carriageways, etc., Contract No. 2. Plans may be seen, and copies of specification, schedules, and forms of tender may be obtained, from Mr. George Somervel Carfrae, C.E., 1, Erskine-place, Edinburgh, on payment of 1*l.* for each contract.

MAY 27.—**London.**—WOOD PAVING WORKS.—The Royal Borough of Kensington invite tenders for providing and laying creosoted deal blocks on the existing foundations in Westbourne-grove and Archer-street (from Lambton-mews to Kensington Park-road) (5,000 sq. yds. approximately), and in Old Brompton-road (from Queen's-gate to Bute-street) (2,350 sq. yds. approximately). Specifications can be seen, and further particulars obtained, at the office of the Borough Engineer and Surveyor, Town Hall, Kensington, aforesaid.

MAY 27.—**Moseley.**—ROAD WORKS.—King's Norton and Northfield U.D.C. invite tenders for the making good of Bloomfield-road, Moseley. Bills of quantities and forms of tender may be obtained at the office of the Engineer and Surveyor to the Council, Mr. Ambrose W. Cross, A.M.Inst.C.E., No. 23, Valentine-road, King's Heath, on payment of a deposit of 1*l.* 1s.

MAY 27.—**Upminster, Romford.**—SEWER.—Romford R.D.C. invite tenders for the construction of 9-in. and 12-in. outfall sewers, including cast-iron river crossing, for the Parish of Upminster. Full particulars, drawings, and specification can be seen, and form of tender obtained, upon application to Mr. E. G. Boden, Council Surveyor, Victoria-chambers, Romford.

MAY 28.—**Gateshead.**—PAVING.—For paving Park-lane and a section of South Shore-road. Plans and specifications can be seen, and quantities obtained, at the office of Mr. N. P. Pattinson, Borough Surveyor, Town Hall.

MAY 28.—**Islington.**—PAVING.—Islington B.C. invite tenders for paving with wood blocks and repaving with granite setts portions of the carriageway of Holloway-road; removing the granite setts from portions of Holloway-road to be paved with wood blocks, and paving other roads at present macadamised with such setts. Conditions and specification may be seen, and forms of tender and bills of quantities obtained, upon application to the Borough Engineer, Mr. J. Patten Barber, at the Town Hall, Upper-street, N., and payment of 2*l.* 2s.

* MAY 29.—**Barnet.**—MAKING-UP ROAD.—The Barnet U.D.C. invite tenders for making-up Wrotham-road, Barnet. For further particulars refer to advertisement in this issue.

MAY 29.—**Blaydon.**—WIDENING ROAD.—The Blaydon U.D.C. invite tenders for executing the work necessary in widening and fencing part of the Gateshead and Hexham main road, between Blaydon Main Colliery and Bateshouse-lane, near Blaydon. Plans, sections, and specification may be seen, and quantities and form of tender obtained, on application to the Surveyor, Mr. George Symon, upon payment of 1*l.*

* MAY 29.—**Hither Green.**—RELAYING DRAINS.—The Metropolitan Asylums Board invite tenders for relaying drains at the Park Fever Hospital, Hither Green, S.E. For further particulars please refer to an advertisement in this issue.

* MAY 29.—**Homerton.**—RELAYING DRAINS.—The Metropolitan Asylums Board invite tenders for relaying drains at the Eastern Fever Hospital, The Grove, Homerton, E. For further particulars refer to an advertisement in this issue.

* MAY 29.—**London.**—ROAD.—Tenders are invited for repairing wood-block and tar-macadam road at the Northern (Convalescent) Fever Hospital, Winchmore Hill, and for further particulars see advertisement in this issue.

MAY 29.—**Milton Abbey.**—CARRIAGE ROAD.—For the construction of 784 yds. or thereabouts of carriage road at Milton Abbey, near Blandford, in the county of Dorset, for Mr. E. A. Hambro. Copies of the plans, specification, and form of contract may be obtained on payment of 10s. 6d. from Mr. H. F. Stephens, A.M.Inst.C.E., Salford-terrace, Tonbridge, Kent.

* MAY 29.—**Swanley (Kent).**—ROAD REPAIRS.—The Metropolitan Asylums Board invite tenders for repairs to roads and tar-paving to paths at White Oak School, Swanley, Kent. For further particulars refer to an advertisement in this issue.

MAY 30.—**Aston.**—SEWER.—Hertford R.D.C. invite tenders for constructing a screening chamber, tank, and manholes, and laying 100 yds. of sewer at Aston. Plans, specifications, and all particulars may be obtained from Mr. J. W. Riggs, surveyor, Port Vale-terrace, Hertford.

MAY 30.—**Clayton-le-Moors.**—STREET WORKS, ETC.—The U.D.C. invite tenders for the various works required to be done in sewering, levelling, paving, channelling, and making good a number of front and back streets. Plans may be seen, and specifications, quantities, and forms of tender may be obtained (on payment of 10s. 6d.) upon application to Mr. Arthur Dodgeon, Surveyor to the Council, U.D.C. Offices, Clayton-le-Moors. Also for the construction of about 80 yds. of circular brick culvert, etc., in tunnel at Super Clough.

MAY 30.—**Lupton.**—WATER WORKS.—South Westmorland R.D.C. invite tenders for the construction of about 21½ miles of 6-in., 4-in., and 3-in. cast-iron pipes, and laying the same from the intended Lupton Reservoir to Holme, Milnthorpe, Heversham, Beetham, Haverbrack, and Arnside. Plans will be lodged at office of Mr. Alexander Milne, Clerk to the Council, Kendal, on May 18 for inspection, and quantities and specifications, etc., can be had on application for 5s. each. Further information can be obtained (by letter) from the engineer, Mr. William Harrison, of 30, Great Avenham-street, Preston, who will also attend at 5, Lowther-street, Kendal, to meet contractors, on May 22 and 23, between 11 a.m. and 5 p.m.

MAY 31.—**Baldock.**—WATER SUPPLY WORKS.—The U.D.C. of Baldock, Herts, invite tenders for works of water supply. A copy of the specification, bill of quantities, form of tender, schedule, and general conditions may be obtained on application to the engineer, Mr. P. F. Mackenzie Richards, 53, Victoria-street, Westminster, or to Mr. Chas. J. Veasey, Clerk to the U.D.C., Baldock, Herts, on payment of 2*l.* 2s., by cash or postal orders, and the plans may be inspected either at the office of the above-named engineer or at Clerk's Office at Baldock.

MAY 31.—**Gilwern.**—PIPES FOR WATER SUPPLY.—Crickhowell R.D.C. invite tenders for the supply of 2,160 yds. of 3-in. and 20 yds. of 2-in. cast-iron spigot and socket pipes for Gilwern Water Supply (contract No. 1). Specification and form of tender may be obtained from the engineer, Mr. F. J. Hurley, Beaufort-chambers, Crickhowell, on deposit of 1*l.* 1s.

MAY 31.—**Gilwern.**—WATER WORKS.—Crickhowell R.D.C invite tenders for the construction of intake tanks, service reservoir to hold 12,250 galls., and the laying down and jointing of 2,165 yds. of 3-in. and 20 yds. of 2-in. cast-iron mains and their appurtenances, Gilwern Water Supply (contract No. 2). The plans and specification may be seen at the office of the engineer, Mr. F. J. Hurley, Beaufort-chambers, Crickhowell, and copies of the bill of quantities obtained on depositing 1*l.* 1s.

MAY 31.—**Llangattock.**—PIPES FOR WATER SUPPLY.—Crickhowell R.D.C. invite tenders for the supply of 1,110 yds. of 3-in. cast-iron spigot and socket pipes for Llangattock Water Supply (contract No. 1). Specification and form of tender may be obtained from the engineer, Mr. F. J. Hurley, Beaufort-chambers, Crickhowell, on deposit of 1*l.* 1s.

MAY 31.—**Llangattock.**—WATER SUPPLY.—Crickhowell R.D.C. invite tenders for the construction of intake tanks, service reservoir to hold 10,000 galls, and the laying down and jointing of 1,147 yds. of 3-in. cast-iron mains and their appurtenances, Llangattock Water Supply (contract No. 2). The plans and specification may be seen at the office of the engineer, Mr. F. J. Hurley, Beaufort-chambers, Crickhowell, and copies of the bill of quantities obtained on depositing 1*l.* 1s.

JUNE 1.—**Chingford.**—STREET WORKS.—Chingford U.D.C. invite tenders for making-up, paving, kerbing, lighting, etc., the Suffie'd-road, and for making-up and kerbing a portion of the St. John's-road, in accordance with plans and specifications prepared by the Council's Surveyor, Mr. J. T. Griffin, copies of which and form of tender may be obtained on application and upon payment of a deposit of 2*l.* 2s.

JUNE 3.—**Edinburgh.**—SEWER WORKS.—Edinburgh Corporation invite tenders for the following work at M'Donald-road electricity supply station:—Construction of sewer shaft and laying cast-iron pipe line for condensing water. The specification, form of tender, general conditions, and drawings can be obtained from the Engineer, Dewar-place Station, Edinburgh, on payment of a deposit of 2*l.* 2s. The specification, general conditions, and drawings can be seen at, but not obtained from, the office of Sir A. B. W. Kennedy, 17, Victoria-street, Westminster, London, S.W.

JUNE 5.—**Boreham Wood.**—SEWAGE WORKS.—Barnet R.D.C. invite tenders for the labour and materials for constructing filter-beds and other sewage purification works at Boreham Wood, about half a mile from Elstree (M.R.) Station. Plans and specifications may be seen, and forms of tender obtained, on application to Mr. T. England, the Council's Surveyor, "Fernlea," Boreham Wood.

JUNE 5.—**Middleton.**—PAVING.—The Corporation of Middleton invite tenders for the paving, etc., of Sadler-street, within the Borough. Plans may be seen, and specifications, quantities, and form of tender may be obtained, on application to Mr. W. Welburn, Borough Surveyor, at his office at the Town Hall, Middleton.

JUNE 10.—**Manchester.**—HEATON PARK RESERVOIR.—The Waterworks Committee invite tenders for the construction of a reservoir covering an area of about 70 acres at Heaton Park. Drawings may be seen, and specification, etc., obtained, at the offices of the engineers, Messrs. G. H. Hill & Sons, civil engineers, Albert-chambers, Albert-square, Manchester, and 3, Victoria-street, Westminster, upon receipt of cheque for 5*l.* 5s.

STONE, MATERIALS, AND STORES.

MAY 20.—**Guildford.**—ROAD MATERIAL.—Guildford R.D.C. invite tenders for the supply of granite, basalt, Bargate stone, flints, Hungry Hill flints, and Farnham gravel, and also for carting materials. Forms of tender and other information may be obtained from the Surveyor of the Council, Mr. J. Anstee, at the Council's Offices, Commercial-road, Guildford.

MAY 20.—**Kingsbury.**—GRANITE, ETC.—The U.D.C. of Kingsbury invite tenders for the supply of granite and granite chippings and ironstone slag, etc. Specifications and forms of tender may be had

upon application to Mr. J. Deacon Newton, Public Offices, Kingsbury-road, N.W.

MAY 20.—**Petworth.**—ROAD MATERIALS.—Petworth R.D.C. invite tenders for carting materials to the various lengths of road in the several parishes of Petworth, Wisborough, etc., and for supplying and carting materials to the various lengths of road in the several parishes of Bury, Bignor, etc. Forms of tender will be sent by Mr. Ernest H. Staffurth, Clerk, Petworth, or by the Surveyor of the Council, Fox Hill, Petworth, on receipt of a stamped addressed envelope.

MAY 21.—**Chorley.**—LIME, ETC.—Chorley Corporation invite tenders for the following:—(1) Supply of lump lime, small lime, or lime ashes, 750 tons, or thereabouts; (2) supply of brimstone acid, 100 tons, or thereabouts; (3) supply of pyrites acid, 150 tons, or thereabouts; for twelve months, commencing July 1, 1907. Form of tender for acid, or any other information, may be obtained on application to Mr. J. W. Allin, Gas Engineer, Chorley.

MAY 21.—**Chorley.**—PIPES.—Chorley Corporation invite tenders for the supply and delivery at the Chorley Railway Station of various sizes of cast-iron pipes. Specification and form of tender can be obtained from Mr. J. W. Allin, Gas Engineer, Chorley.

MAY 21.—**Faversham.**—TAR.—Faversham R.D.C. invite tenders, at per gallon, for the supply of 4,200 gallons (more or less) of specially prepared, extra thick, double-distilled tar, similar to sample, which can be seen at the office of the District Surveyor. Further particulars can be obtained on application to the District Surveyor, Mr. J. G. Chittenden, Ashford-road, Preston, Faversham.

MAY 25.—**Wrotham.**—ROAD MATERIAL.—Wrotham U.D.C. invite tenders for the supply of stone, to be delivered upon the roads within the district of the Council; also for the cartage of same. Conditions of contract may be inspected, and forms of tender obtained, upon application to Mr. F. T. Elliott, the Surveyor of the Council, at his office, Borough Green, Sevenoaks.

MAY 27.—**Burgess Hill.**—GRANITE AND FLINTS.—Burgess Hill U.D.C. require tenders for the supply of 925 tons of 1½-in. granite, 10 tons of fine granite, 100 tons of dust granite, and 50 yds. of surface dug flints. Forms to be obtained of the Clerk, Mr. A. F. Hardwick, Burgess Hill, Sussex.

MAY 27.—**Farnborough.**—ROAD MATERIAL.—Farnborough U.D.C. invite tenders for the supply of tarmacadam, etc. Specifications, form of tender, and full particulars may be obtained on application to Mr. J. E. Hargreaves, Surveyor, Town Hall, Farnborough, Hants.

* MAY 28.—**Brentford.**—BROKEN GRANITE.—The Brentford U.D.C. invite tenders for 150 yds. of blue Guernsey granite, hand broken, to a gauge of 2 in. For further particulars refer to an advertisement in this issue.

MAY 28.—**Fleet.**—MACADAM.—Fleet U.D.C. invite tenders for the supply on rail at Fleet Station (Hants) of 280 tons of Clee Hill, Mountsorrel, or similar quality macadam, broken to 2-in. gauge. (Mr. W. H. Wright, Clerk to the Council, Albert-street, Fleet, Hants.)

* MAY 28.—**Ryde.**—CAST-IRON PIPES, ETC.—The Ryde T.C. invite tenders for the supply and delivery of about 850 yds. of 9-in., 270 yds. of 5-in., and 200 yds. of 3-in. cast-iron pipes, with valves, hydrants, and other castings. For further particulars refer to an advertisement in this issue.

MAY 29.—**Walton-on-Thames.**—BROKEN GRANITE.—The U.D.C. invite tenders for the supply of 1,200 tons of 1½-in. broken granite. Specification and form of tender may be obtained on application to Mr. R. Wilds, Surveyor, Council Offices, Walton-on-Thames.

MAY 30.—**Ashford.**—ROAD METAL.—Ashford U.D.C. invite tenders (with samples) for 1,675 cubic yds. (more or less of 2-in. gauge broken granite, etc., as per form of tender, to be obtained from Mr. William Terrill, Surveyor, at his office, 5, North-street, Ashford, Kent.

JUNE 1.—**Glasgow.**—STORES.—Clyde Navigation Trustees invite tenders for the supply of stores for the year commencing July 1, 1907. Specifications and forms of tender may be had on application to the Superintendent of Stores, 16, Robertson-street, Glasgow.

JUNE 4.—**Aldershot.**—MATERIALS.—Aldershot U.D.C. invite tenders for materials. Forms of tender will be supplied for tarmac, basalt, and flints only. Tenders, endorsed "Tarmac," "Basalt," "Kerbing," "Channelling," "Flints," or "Tar-paving," as the case may be, to be sent under seal to Mr. W. E. Foster, Clerk. (Mr. Fred C. Uren, District Surveyor.)

JUNE 5.—**Sefton.**—MATERIALS.—Sefton R.D.C. invite tenders for the supply of materials, etc., also for breaking boulders, paving, and cartage, in townships. Printed forms to be obtained from Mr. Harris P. Cleaver, Clerk to the Council, Brougham-terrace, West Derby-road, Liverpool.

JUNE 11.—**Dartford.**—SUPPLIES.—The U.D.C. of Dartford invite tenders for the supply and delivery of the goods. Particulars and forms of tender will be sent to any applicant on receipt of a stamped addressed foolscap envelope, or may be obtained upon application to Mr. W. Kay, Clerk to the Council, Council Offices, Dartford.

JUNE 11.—**Limerick.**—SUPPLIES.—Limerick Corporation Electrical Committee invite tenders for general stores, including accumulator accessories, cable, electrical accessories, engine-room accessories, mains accessories, and meters, etc. Copies of specification, forms of tender, and further particulars may be obtained on application to Mr. James Gallinagh, Borough Electrical Engineer, Power Station, Limerick.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*TEACHER OF PLUMBER'S WORK	Tottenham Polytechnic	12s. 6d. per evening	June 3
*DISTRICT SURVEYORS	London C.C.	See Advertisement in this issue	June 8

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD ESTATE, NEAR BROXBOURNE STATION—Bull Hotel, Hoddesdon	Bridgman & Son	May 28
*CONTRACTOR'S STOCK, MACHINERY, ETC., MANSFIELD—On the Premises	Galbraith, Bethene, & Co., Ltd.	May 28, etc.
*CALNE BRICK AND TILE WORKS, WILTS.—Lansdowne Arms Hotel, Calne	Ferris & Puckridge & H. H. Parry	May 29
*DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C.	Churchill & Sims	May 29
*BUILDING ESTATE, CRICKLEWOOD, N.W.—At the Mart	Debenham, Tewson, Richardson, & Co.	June 11
*FREEHOLD BUILDING ESTATE, DARTFORD—At the Mart	Driver, Jonas, & Co.	June 24

PATENTS.—*Continued from page* 614.

10,900 of 1906.—E. S. ALI. COHEN: *Artificial and Other Stone.*

This relates to a process for making artificial stone by mixing magnesite with zinc oxide or zinc carbonate in suitable proportions, calcining the mixture, adding a suitable filling material, and mixing the product intimately with a solution of magnesium chloride with or without the additionof silicic acid.

13,722 of 1906.—G. W. NAYLOR and J. F. NAYLOR, and W. B. FENWICK: *Manufacture of Sanitary Pipes, and the like.*

This relates to means for forming slots in sanitary pipes and the like, comprising a knife or knives with mechanism adapted to reciprocate same radially in relation to the axis of the pipe.

3,410 of 1907.—A. ISSLEIB: *Latch Lock Spindle Fastenings.*

This relates to a latch lock with a divided spindle, the overlapping members of which are pressed together by a wedge in the eye of the latch-operating follower, which wedge is parallel with the spindle, and is drawn into the eye of the follower by means of an external screw-threaded sleeve which engages a screw-threaded prolongation or adjunct of the wedge.

4,005 of 1907.—E. E. RUNYON: *Whip Locks.*

This consists in the combination with a whip socket of a plate secured thereby and provided with a sleeve having a smooth bore, the bore of said sleeve being provided with a continuous spiral groove, and a cylindrical plug fitted exactly within the bore and having a continuous spiral thread and a squared reduced outer end, said plug being adapted to be turned by means of a key having a cylindrical recessed head which exactly fits within the bore and receives the reduced squared end thereof.

5,517 of 1907.—B. P. HESS: *Devices for Graining Floors.*

This relates to a graining tool comprising a resilient plate, handles pivoted thereto and connected together, a transferring surface of elastic material, and a packing for the latter in which said plate is embedded.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

May 3.—By DYER, SON, & HILTON (at Lee Green).

Lee.—21, 29, and 31, Taunton-rd., u.t. 52½ yrs., g.r. 15*l.*, y.r. 80*l.* £660
41, Blessington-rd., u.t. 45½ yrs., g.r. 12*l.*, y.r. 45*l.* 150

May 6.—By BOWYER & JONES.

Enfield.—23, Glebe-av., u.t. 72 yrs., g r. 7*l.* 10s., p. 300

By DAVID BURNETT & CO.

Fulham.—2, Gironde-rd. (s.), f., y.r. 55*l.* 470
Great Warley.—Albert-st., four freehold cottages, w.r. 67*l.* 12s. 910
Walthamstow.—131 and 133, Fulbourne-rd., f., p. 255
The High View Building Estate, 22½ a., f. .. 6,000
Wadham-rd., freehold building plot 400
Garner-rd., freehold building plot 1,200
Garner-rd., four freehold building plots 1,465

By FREDERICK ELLEN & SON.

Nether Wallop, Hants.—"Wallop Mill," and 4 a. 3 r. 9 p., f. 800
Six freehold cottages, w.r. 27*l.* 6s. 870
Three enclosures of arable land, 67 a. 3 r. 4 p., f. 625

By P. & G. GEEN.

Crouch Hill.—Nos. 23 and 27 (s.), u.t. 50 yrs, g r. 18*l.*, y.r. 130*l.* 1,130
Caterham.—Beechwood-gdns., three freehold plots 100
Bushey.—Belmont-rd., fourteen freehold plots 765

By KEMSLEYS'.

Fulham—108 and 110, Bayonne-rd., f., w.r. 52*l.* 500

By PRICKETT & ELLIS.

Highgate.—8 and 23, North-hill, c., y.r. 78*l.* .. 1,200
92 and 94, North-hill, c., w.r. 41*l.* 12s. 460
East Finchley.—1 and 2, Fleming-cottages, men's club and smithy, c., y.r. 62*l.* 820
Dymchurch, Kent.—Two enclosures of arable land, 48 a. 1 r. 1 p., f. 810
North Warnborough, Hants.—"Chapel House," f., p. 350
Highgate.—39 and 41, North-rd., f. and c., y.r. 65*l.* 950

By MESSRS. FURBER (at Winchester House). FIRST DAY'S SALE.

Islington.—Bingfield-st., f.g.r. 2*l.*, reversion in 33 yrs. 140
Bingfield-st. and Bemerton-st., f.g.r. 2*l.*, reversion in 33 yrs. 110
Bemerton-st., f.g.r. 3*l.*, reversion in 33 yrs. ... 155
Bemerton-st., f.g.r. 6*l.*, reversion in 33 yrs. ... 325
Bemerton-st., reversion to 340*l.* in 33 yrs £900
Bemerton-st., reversion to 381*l.* in 33 yrs. 330
Bemerton-st., reversion to 95*l.* in 33 yrs. 245
Bemerton-st., f.g.r. 4*l.*, reversion in 33 yrs. .. 165
Bemerton-st., f.g. rents 4*l.*, reversion in 33 yrs. 140
Copenhagen-st., f.g.r. 24*l.*, reversion in 33 yrs. 980
Bemerton-st., reversion to 120*l.* in 33 yrs. 120
Bemerton-st., f.g.r. 2*l.*, reversion in 33 yrs. .. 140
Bemerton-st., f.g.r. 3*l.*, reversion in 33 yrs. .. 180
Copenhagen-st., f.g. rents 60*l.*, reversion in 33 yrs. 2,000
Copenhagen-st., f.g. rents 9*l.*, reversion in 33 yrs. 495
Caledonian-rd., f.g. rents 9*l.*, reversion in 33 yrs. 485
Caledonian-rd., f.g. rents 10*l.*, reversion in 33 yrs. 990
Caledonian-rd., f.g. rents 39*l.*, reversion in 33 yrs. 1,810
Luard-st., f.g. rents 7*l.*, reversion in 33 yrs... 355
Luard-st., f.g. rents 4*l.*, reversion in 33 yrs... 185
Luard-st., f.g. rents 4*l.*, reversion in 33 yrs... 195
Luard-st., f.g. rents 4*l.*, reversion in 33 yrs... 190

May 7.—SECOND DAY'S SALE.

Islington.—Luard-st., f.g. rents 25*l.*, reversion in 33 yrs. 1,229
Twyford-st., f.g. rents 71*l.*, reversion in 33 yrs. 2,568
Stanmore-st., f.g. rents 18*l.*, reversion in 33 yrs. 490
Twyford-st., reversions to 462*l.* in 37 yrs.... 718
Stanmore-st., reversions to 492*l.* in 37 yrs.... 467

By J. C. PLATT.

Hammersmith.—6, Luxemburg-gdns, f., y.r. 60*l.* 850
317 to 323 (odd), King-st., and 1, St. Peter's-gr. (s.), u.t. 16 yrs., g.r. 24*l.*, y.r. 275*l.* 3,050
2, Ravenscourt-pk., u.t. 82 yrs., g.r 7*l.*, y.r. 45*l.* 550
2, 3, and 5, Beresteade-rd., u.t. 77 yrs., g.r. 17*l.* 5s., w.r. 140*l.* 8s. 1,150

By HUNTER & HUNTER.

Kingston.—Park-rd., i.g. rents 49*l.* 12s. 6d., u.t. 59 yrs., g.r. 25*l.* 400
Alexandra-rd., i.g. rents 235*l.* 15s., u.t. 59 yrs., g.r. 80*l.* 2,310
Camberwell.—Lothian-rd., f.g. rents 22*l.*, reversion in 52 yrs. 570
Hanwell.—Oak cottages, f.g. rents 35*l.*, reversione in 64 yrs. 675
Willesd n.—Villiers-rd., f.g. rents 8*l.*, reversion in 75 yrs. 190
Bayswater.—Norfolk-rd., f.g.r. 5*l.*, reversion in 39 yrs. 350
Bermondsey.—Ablett-st., f.g. rents 3*l.*, reversion in 70 yrs. 125
Fulham.—Rigault-rd., f.g. rents 8*l.*, reversion in 69 yrs. 180

Clapham.—44 and 46, Portland-pl., North; also l.g. rents 15*l.* 7s., u.t. 13¼ yrs., g.r. 17*l.*, w.r. 91*l.* 12s. £240

By C. P. WHITELEY & SON.

Camberwell.—Mosedale-st., f.g.r. 80*l.*, reversion in 49 yrs. 2,525
Kimpton-rd., f.g.r. 10*l.*, reversion in 49 yrs... 330
East Ham.—Caulfield-rd., f.g.r. 25*l.*, reversion in 94 yrs. 585

May 8.—By WM. F. DONOVAN.

Peckham.—3, Bird-in-Bush-rd. (s.), u.t. 21 yrs., g.r. 3*l.* 10s., y.r. 35*l.* 310

By HAROLD GRIFFIN.

Battersea.—33, 35, and 37, Newcomen-rd., f., w.r. 93*l.* 12s. 830
128 and 130, Meyrick-rd., u.t. 39 yrs., g.r. 9*l.*, w.r. 65*l.* 330

By HUGHESDON & HINDS.

Paddington.—17, Cambridge-ter., u.t. 21¾ yrs., g.r. 12*l.* 4s., y.r. 105*l.* 800
35, Leinster-gdns., u.t. 43½ yrs., g.r. 30*l.* 10s., y.r. 150*l.* 1,280
Regent's Park.—6, Cumberland-ter., u.t. 18 yrs., g.r. 33*l.*, y.r. 210*l.* 1,350
9, Cumberland-ter., u.t. 17¾ yrs., g.r. 48*l.*, y.r. 220*l.* 1,300
Hampstead.—33, Lancaster-rd., u.t. 44¾ yrs., g.r. 10*l.*, y.r. 110*l.* 800
35, Lancaster-rd., u.t. 44¾ yrs., g.r. 10*l.*, y.r. 110*l.* 905
Marylebone.—10, Manchester-st., u.t. 5¾ yrs., g.r. 30*l.*, y.r. 110*l.* 215
204, Great Portland-st., and 72, Bolsover-st., u.t. 7½ yrs., g.r. 30*l.*, y.r. 260*l.* 835
Bloomsbury.—45, Upper Bedford-pl., u.t. 1¾ yrs., g.r. 21*l.*, y.r. 150*l.* 150

By MARLER & MARLER.

Fulham.—5, Waldemar-av., u.t. 78 yrs., g.r. 8*l.*, y.r. 40*l.* 315

By SLADE & BUTLER.

Brixton.—19, 21, 37, and 43, Mostyn-rd., u.t. 56 yrs., g.r. 21*l.*, y.r. 141*l.* 1,135
2, Eskdale-villas, u.t. 56 yrs., 5*l.* 5s., y.r. 35*l.* 340

By DOUGLAS YOUNG & CO.

Kentish Town.—25, Dartmouth Park Hill, f., y.r. 75*l.* 1,100
Rochampton.—Alton-rd., "The Laurels," f., y.r. 120*l.* 2,000

By JOHN M. LEEDER & SON (at Swansea).

Kenfig and Pyle, Glamorgan.—Two enclosures of land, f. and c., 12¼ acres 720
Cottage, f. and c., 1½ acres 295
Freehold field, 3 a. 3 r. 0 p. 305
Llangennith, Glamorgan.—Two enclosures of land, f., 5 a. 3 r. 15 p. 170
Llangennith Gower, Glamorgan.—"Druid's Moor," f., 66½ acres 455

May 9.—By LEONARD CAVEY & CO.

Battersea.—8, 10, 12, and 14, Everett-st., u.t. 36 yrs., g.r. 15*l.*, w.r. 85*l.* 16s. 300

By CHESTERTON & SONS.

Kensington.—7, Durham-villas, u.t. 40 yrs., g.r. 40*l.*, p. 3 250
Strand.—No. 154, f., y.r. 680*l.*, area 1,000 ft... 15,850

By DRYSDALE, NURSE, & CO.

Stoke Newington.—56, Clissold-rd., u.t. 41 yrs., g.r. 7*l.* 425
112A, Osbaldston-rd., u.t. 75 yrs., g.r. 6*l.* 10s. 525
Stamford Hill.—5, Hillside-rd., u.t. 75 yrs., g.r. 6*l.* 6s., e.r. 36*l.* 260
Stoke Newington.—38, Alkham-rd., u.t. 69 yrs., g.r. 8*l.*, p. 400
123, Evering-rd., u.t. 66 yrs., g.r. 8*l.*, y.r. 45*l.* 290

By PERCIVAL HODSON.

Finsbury Park.—55, Stroud Green-rd. (s.), u.t. 56 yrs., g.r. 15*l.*, y.r. 100*l.* 560

By MARTIN, WHITE, & CO.

Dulwich.—Townley-rd., "Aberfeldy," u.t. 57 yrs., g.r. 11*l.*, p. 360

By MAY & ROWDEN.

Soho.—12, Bateman-st., f., p. 1,960

By C. C. & T. MOORE.

Stoke Newington.—1 to 18, Lawrence's-bldgs., u.t. 79 yrs., g.r. 30*l.*, w.r. 353*l.* 12s. 1,660
Leytonstone.—55, Colworth-rd., u.t. 86½ yrs., g.r. 5*l.*, p. 195
Forest Gate.—105, Claremont-rd., f., p. 635
Stepney.—61 and 63, Maroon-st., f., w.r. 67*l.* 12s. 480
13, Brenton-st., c., w.r. 27*l.* 6s. 230

By NEWBON, SHEPHARD, & EDWARDS.

Lambeth.—45, Albert-ter., u.t. 56 yrs., g.r. 7*l.* 10s., y.r. 45*l.* 420
Hackney.—36, Weymouth-ter., u.t. 49 yrs., g.r. 7*l.*, w.r. 41*l.* 12s. 215
Islington.—34, Islington-gr. (s.), u.t. 21½ yrs., g.r. 40*l.*, w.r. 103*l.* 110
Barnsbury.—51, Hemingford-rd., u.t. 34 yrs., g.r. 6*l.*, e.r. 42*l.* 260

By T. D. PEACEY.

Chalk Farm.—13, Grogsland-rd., u.t. 54 yrs., g.r. 8*l.*, w.r. 92*l.* 6s. 525
Kentish Town.—38 and 40, Clarence-rd., u.t. 30 yrs., g.r. 10*l.*, y.r. 80*l.* 500
Regent's Park.—36, Park Village East, u.t. 15¾ yrs., g.r. 12*l.*, e.r. 70*l.* 120

By STIMSON & SONS.

Finsbury Park.—59, Finsbury-pk-rd., u.t. 59¾ yrs., g.r. 9*l.* 9s., y.r. 50*l.* 460
Battersea.—26 and 28, Chatham-st., u.t. 58 yrs., g.r. 12*l.*, w.r. 59*l.* 16s. 270
Peckham.—28 and 30, Amott-rd., u.t. 61½ yrs., g.r. 13*l.*, y.r. 56*l.* 540
Bermondsey.—274 and 276, Southwark-pk-rd. (s.), u.t. 49 yrs., g.r. 11*l.*, y.r. 150*l.* 1,750
Rotherhithe.—152 and 154, Rotherhithe New-rd., u.t. 46 yrs., g.r. 8*l.*, y.r. 52*l.* 590
156, 158, and 160, Rotherhithe New-rd., u.t. 46 yrs., g.r. 12*l.*, y.r. 78*l.* 840
New Cross.—12, 14, 16, and 18, Reaston-st., u.t. 68½ yrs., g.r. 20*l.*, w.r. 156*l.* 1,140
43 to 67 (odd), Monson-rd., u.t. 68½ yrs., g.r. 54*l.* 12s., y.r. and w.r. 370*l.* 4s. 3,910
Blackheath.—146, Humber-rd., f., y.r. 42*l.* 540
23, Westcombe-hill (s.), u.t. 71½ yrs., g.r. 7*l.* 10s., y.r. 50*l.* 450
157 and 159, Westcombe-hill, u.t. 72½ yrs., g.r. 13*l.* 2s. 6d., y.r. 68*l.* 595

Charlton.—330, Woolwich-rd. (s.), u.t. 74½ yrs., g.r. 5*l.* 2s., y.r. 34*l.* £300
Millwall.—131 to 139 (odd), East Ferry-rd. (s.), u.t. 56 yrs., g.r. 23*l.*, y.r. 189*l.* 1,480
5, 7, 9, and 11, Glengall-rd., u.t. 55 yrs., g.r. 16*l.*, w.r. 140*l.* 700

May 10.—By CRABB & SON.

Lambeth.—50, 51, and 52, Ethelred-st., and 46, Hutton-rd., u.t. 65 yrs., g.r. 15*l.*, w.r. 115*l.* 14s. 705

By FERRIS & PUCKRIDGE.

Finsbury.—1, 3, 5, and 1a, City-rd., and 3, Tabernacle-st., u.t. 40 yrs., g.r. 220*l.*, y.r. 568*l.* 4s. 6d. 4,200

By G. HASLETT.

Plumstead.—2, Vicarage-pk., f., e r. 36*l.* 500
Tottenham.—71 and 73, Lawrence-rd., f., y.r. 40*l.* 630

By MONTAGU & ROBINSON.

Lambourn, Berks.—"Burnaby House," f., 36¼ acres 2,500
"Burnaby Cottages," f., w.r. 23*l.* 5s. 10d.... 200

By PRICE, ARROW, & TAYLOR.

Tooting.—87, Ritherdon-rd., u.t. 83 yrs., g.r. 9*l.* 15s., e.r. 55*l.* 490

By GEORGE RAVENSHEAR.

Ealing.—Leeland-rd., f.g.r. 25*l.*, reversion in 99 yrs. 515

By RIDER & SONS.

Notting Hill.—4, Kenilworth-st., f., w.r. 41*l.* 12s. 410

By P. WONTNER-SMITH.

Wood Green.—69, Park-bldgs., u.t. 73 yrs., g.r. 7*l.* 10s., e.r. 36*l.* 275
Hackney.—35, Queen Ann-rd., u.t. 37¾ yrs., g.r. 5*l.*, w.r. 38*l.* 7s. 225
22, Bradstock-rd., u.t. 38½ yrs., g.r. 4*l.*, w.r. 36*l.* 8s. 265

Contractions used in these lists.—**F.g.r.** for freehold ground-rent; **l.g.r.** for leasehold ground-rent; **l.g.r.** for improved ground-rent; **g.r.** for ground-rent; **r.** for rent; **f.** for freehold; **c.** for copyhold; **l.** for leasehold, **p.** for possession; **e.r.** for estimated rental; **w.r.** for weekly rental; **q.r.** for quarterly rental; **y.r.** for yearly rental; **u.t.** for unexpired term; **p.a.** for per annum; **yrs.** for years; **la.** for lane; **st.** for street; **rd.** for road; **sq.** for square; **pl.** for place; **ter.** for terrace; **cres.** for crescent; **av.** for avenue; **gdns.** for gardens; **yd.** for yard; **gr.** for grove; **b.h.** beerhouse; **p.h.** for public-house; **o.** for office; **s.** for shops; **ct.** for court.

PUBLISHER'S NOTICES.

Nat. Tel., 6112 Gerrard. Telegrams, "The Builder, London."

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

Six lines or under ..... 6s. 0d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under..... 4s. 6d.
Each additional line (about ten words)..... 0s. 6d.

Terms for series of Trade advertisements, and for front page and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

Four lines (about thirty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," 4, Catherine Street, W.C.

Advertisements or the current week's issue are received up to HALF-PAST ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST TWELVE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the Office*, 4, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

MEETINGS.

SATURDAY, MAY 18.

Junior Institution of Engineers.—Visit at 3 p.m. the Stanley Scientific Instrument Works of Messrs. W. F. Stanley & Co., and the Stanley Technical Trade Schools at South Norwood.

Royal Sanitary Institute.—Meeting in the Town Hall, Eastbourne, at 12 noon, when a discussion will be opened on "The Main Drainage of Eastbourne," by Mr. A. E. Prescott, Borough Engineer and Surveyor.

TUESDAY, MAY 21.

Edinburgh Architectural Association.—Associates' Visit to Glasgow.

Royal Institution.—Mr. D. S. MacColl on "Alfred Stevens, the English Sculptor and Painter"—II. 3 p.m.

THURSDAY, MAY 23.

Royal Institution.—Professor Sir J. Dewar, M.A., on "Chemical Progress—Work of Mendeleeff and Moissan"—I. 3 p.m.

London County Council School of Building (Ferndale-road, Brixton).—Six illustrated lectures on the Architecture of London, by Professor B. Pite. I.—Westminster and the Abbey. 7.30 p.m.

Institution of Electrical Engineers.—(1) Messrs. F. Handley Page and Fielder J. Hiss on "The Present State of Direct Current Design as Influenced by Interpoles." (2) Mr. J. T. Irwin on "Hot Wire Watt Meters and Oscillographs." 8 p.m.

FRIDAY, MAY 24.

Royal Institution.—Professor J. A. Fleming, M.A., on "Recent Contributions to Electric Wave Telegraphy." 9 p.m.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 7 0	per 1000 alongside, in river.	
Rough Stocks and Grizzles	1 6 0	,,	,,
Picked Stocks for Facings	2 10 0	,,	delivered.
Flettons	1 6 0	,,	at railway depôt.
Red Wire Cuts	1 14 0	,,	,,
Best Fareham Red	3 12 0	,,	,,
Best Red Pressed Ruabon Facing	5 0 0	,,	,,
Best Blue Pressed Staffordshire	3 15 0	,,	,,
Do. Bullnose	4 0 0	,,	,,
Best Stourbridge Fire Bricks	3 14 0	,,	,,
GLAZED BRICKS.			
Best White and Ivory Glazed Stretchers	12 0 0	,,	,,
Headers	11 0 0	,,	,,
Quoins, Bullnose, and Flats	16 0 0	,,	,,
Double Stretchers	19 0 0	,,	,,
Double Headers	16 0 0	,,	,,
One Side and two Ends	19 0 0	,,	,,
Two Sides and one End	20 0 0	,,	,,
Splays, Chamferred, Squints	20 0 0	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	,,	,,
Quoins, Bullnose, and Flats	14 0 0	,,	,,
Double Stretchers	15 0 0	,,	,,
Double Headers	14 0 0	,,	,,
One Side and two Ends	15 0 0	,,	,,
Two Sides and one End	15 0 0	,,	,,
Splays, Chamferred, Squints	14 0 0	,,	,,
Second Quality White and Dipped Salt Glazed	2 0 0	,,	less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 6	,, ,,
Best Portland Cement	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	,, ,,
PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1	,, ,,
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½	,, ,,
	s. d.	
Ancaster in blocks	1 10	per ft. cube, deld. rly. depôt.
Beer ,,	1 6	,, ,,
Greenshill ,,	1 10	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 2	,, ,,

STONE (*continued*).

	s.	d.	
Closeburn Red Freestone	2	0	per ft. cube, deld. rly. depôt.
Red Mansfield ,,	2	4	,, ,,
YORK STONE—*Robin Hood Quality.*			
Scappled random blocks.	2	10	,, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super., ,,
6 in. rubbed two sides ditto, ditto	2	6	,, ,,
3 in. sawn two sides slabs (random sizes)	0	11½	,, ,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,, ,,
1½ in. to 2 in. ditto, ditto	0	6	,, ,,
HARD YORK—			
Scappled random blocks.	3	0	per ft. cube, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super. ,,
6 in. rubbed two sides ditto	3	0	,, ,,
3 in. sawn two sides slabs (random sizes)	1	2	,, ,,
2 in. self-faced random flags	0	5	,, ,,

SLATES.

In. In.	£	s.	d.	
20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12 ,, ,,	13	17	6	,, ,,
20×10 first quality ,,	13	0	0	,, ,,
20×12 ,, ,,	13	15	0	,, ,,
16×8 ,, ,,	7	5	0	,, ,,
20×10 best blue Portmadoc	12	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,
20×10 best Eureka unfading green	15	17	6	,, ,,
20×12 ,, ,,	18	7	6	,, ,,
18×10 ,, ,,	13	5	0	,, ,,
16×8 ,, ,,	10	5	0	,, ,,
20×10 permanent green	11	12	6	,, ,,
18×10 ,, ,,	9	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1000 at rly. depôt.
Hip and Valley tiles	3	7	per doz. ,,
Best Broseley tiles	50	0	per 1000 ,,
Do. Ornamental tiles	52	6	,, ,,
Hip and Valley tiles	4	0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	,, ,,
Do. Ornamental do.	60	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	0	,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 ,,
Do. Ornamental do.	54	6	,, ,,
Hip tiles	4	1	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1000 ,,
Best Ornamental tiles	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,,
Do. pressed	47	6	,, ,,
Do. Ornamental do.	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	6	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0		less than 7 in. and 8 in.		
Deals: seconds	1	0	0		less thn best.		
Battens: seconds	0	10	0	,,	,,		
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0		more than battens.		
¾ in.	1	0	0		,,		
	At per load of 50 ft.						
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	...	4	15	0
JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	..	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 1 in.	18	10	0	...	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	...	13	10	0
,, ,, battens	10	0	0	...	11	0	0

WOOD (*continued*).

JOINERS' WOOD (*continued*)—	At per standard. £	s.	d.		£	s.	d.
Pitch-pine: deals	18	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0		upwards.		
Oddments	32	0	0		,,		
Seconds, regular sizes	33	0	0		,,		
Yellow Pine oddments	28	0	0		,,		
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	6
Small ,, ,,	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9
¾ in. do. do	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. ,, ,,	0	14	0	...	0	18	0
¾ in. by 7 in. white ,, ,,	0	10	0	...	0	11	6
1 in. by 7 in. ,, ,, ,,	0	12	9	...	0	15	0
6 in. at 6d. to 9d. per square less than 7 in.							

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	7	6	...	7	15	0
Compound Girders, ordinary sections	9	10	0	...	10	10	0
Steel Compound Stanchions	12	5	0	...	13	5	0
Angles, Tees, and Channels, ordinary sections	9	5	0	...	10	5	0
Flitch Plates	9	5	0	...	10	5	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15	0
Staffordshire "Marked Bars"	11	0	0	...	—		
Mild Steel Bars	9	10	0	...	9	15	0
Hoop Iron, basis price	9	15	0	...	10	0	0
,, ,, Galvanised	17	10	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...	—		
,, ,, 24 g.	11	0	0	...	—		
,, ,, 26 g.	12	10	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	16	10	0	...	—		
,, ,, 26 g.	17	0	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	19	0	0	...	—		
,, ,, 22 g. and 24 g.	19	10	0	...	—		
,, ,, 26 g.	21	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	16	0	0	...	—		
,, ,, 22 g. and 24 g.	16	5	0	...	—		
,, ,, 26 g.	17	10	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	14	0	0	...	—		
,, ,, ,, 26 g.	16	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	15	0	...	11	5	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 3lb. and up.	23	0	0	...	—		
Pipe in coils	23	10	0	...	—		
Soil pipe	25	10	0	...	—		
Compo pipe	26	10	0	...	—		
ZINC—Sheet—							
Vieille Montagne ton	33	15	0	...	—		
Silesian	33	10	0	...	—		
COPPER—							
Strong Sheet per lb.	0	1	4	...	—		
Thin ,, ,,	0	1	5	...	—		
Copper nails ,,	0	1	3	...	—		
BRASS—							
Strong Sheet ,,	0	1	2	...	—		
Thin ,, ,,	0	1	3	...	—		
TIN—English Ingots ,,	0	1	11	...	—		
SOLDER—Plumbers' ,,	0	0	9	...	—		
Tinmen's ,,	0	0	11	...	—		
Blowpipe ,,	0	1	1	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft. delivered.	
,, fourths	1¾d.	,,	,,
21 oz. thirds	3¼d.	,,	,,
,, fourths	2¾d.	,,	,,
26 oz. thirds	4¼d.	,,	,,
,, fourths	3¼d.	,,	,,
32 oz. thirds	5d.	,,	,,
,, fourths	4¼d.	,,	,,
Fluted Sheet, 15 oz.	3¼d.	,,	,,
,, 21 oz.	4¼d.	,,	,,

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2¼d.	per ft. delivered.	
⅜ ,,	2¾d.	,,	,,
½ ,,	3d.	,,	,,
Figured and Oxford Rolled "Oceanic" Glass, white	4d.	,,	,,
Do. ,, tinted	5¼d.	,,	,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	3
,, ,, ,, in barrels	,,	0	2	3
,, ,, ,, in drums	,,	0	2	3
Boiled ,, ,, in pipes	,,	0	2	4
,, ,, ,, in barrels	,,	0	2	4
,, ,, ,, in drums	,,	0	2	5
Turpentine in barrels	,,	0	2	6
,, in drums	,,	0	4	3
Genuine Ground English White Lead	per ton	0	4	7
Red Lead, Dry	,,	26	0	0
Best Linseed Oil Putty	per cwt.	24	10	0
Stockholm Tar	per barrel	0	7	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	13	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, and Canada 21s. 8d. (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder" by *Friday Morning's Post*.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BELPER.—For painting at the Isolation Hospital:—
J. H. Harrison & Sons, Belper* £70
[Three other firms tendered.]

BISHOP'S STORTFORD.—For alterations and additions at Bishop's Stortford Technical School, for Hertfordshire County Council. Mr. Urban A. Smith, County Surveyor, Architect, Hatfield:—

Cook & Son	£764 0 0	Vail & Shore	£671 10 7
Patman & Fotheringham, Ltd.	753 0 0	Glasscock & Son, Bishop's Stortford*	659 0 0
Lawrence & Son	692 0 0	Edwards & Medway	643 1 2

[Architect's estimate £700.]

BODMIN.—For erecting a private residence, etc., in Priory-avenue, for Mr. A. C. Pomery. Mr. W. J. Jenkins, architect, Bodmin:—

E. Derrent	£2,391 4	Shelley & Sons	£1,523 0
S. Trehane	1,700 0	C. Ham	1,469 0
W. E. Bennett	1,685 0	Brown & Son	1,435 0

[Architect's estimate, £1,425.]

BORDON CAMP (Petersfield).—New post-office:—

E. & A. Spriggings	£2,374	F. Osman	£2,224
Cæsar Bros.	2,327	M. Wells & Co., Ltd.	2,220
S. Salter	2,282	H. Smith	2,172
Haslemere Builders, Ltd.	2,275	R. Cook & Sons*	1,962
G. A. Kemp	2,251	F. & G. Foster	1,873
		J. Hayes	1,860

BRISTOL.—For the erection of a mortuary, etc., at the Stapleton Workhouse, for the Guardians:—

S. Clibbens	£470 0	G. Brain	£300 0
H. H. Forse	348 0	E. C. Harvey	299 5
E. Love	330 0	E. Clarke & Sons	290 0
G. Downs & Son	325 0	W. Hendey	286 0
J. Browning	325 0	S. Lovell, 54, Cotham-road, Bristol*	234 0
Marsh & Stone	320 10		
S. Williams & Sons	319 0		
E. Walters & Son	317 10		

BUCKIE (Scotland).—For additions and alterations to premises, 20-22, East Church-street, for Mr. John Sandison. Mr. T. D. Robertson, architect, Keith:—

Masons: A. Milne & Son.....
Carpenters: A. Hendry & Son .....
Slaters and Plumbers: J. Barclay & Son } £376 15
Plasterer: R. Hume .....
Painter and Glazier: J. Duncan.....
[All of Buckie.]

BURNLEY.—For widening bridge in Watt-street, Sabden, for the Rural District Council. Mr. S. Edmondson, Surveyor, 18, Nicholas-street, Burnley. Quantities by Surveyor:—
Brassington Bros. & Corney £84 5
Thomber & Dixon, Sabden, Blackburn*. 66 12

BUTTEVANT (Ireland).—For intake works and service reservoir, etc., for Mallow Rural District Council. Messrs. W. H. Hill & Sons, Engineers, Southall, Cork:—

Keller	£15,330 0 0	Martin	£6,255 0 0
Murphy	6,700 0 0	Dillon	6,090 0 0
Duggan	6,655 0 0	Llewellyn	5,971 0 0
Hayes	6,560 0 0	F. Blake	5,827 0 0
Walch	6,521 0 0	Grainger	5,010 10 3
Collon	6,402 0 0	Fitzpatrick	5,587 18 9
O'Mohoney	6,293 0 0	W. Bird	5,551 8 4

CLEWER.—For making-up parts of Elm and Springfield-roads, for Windsor Rural District Council. Mr. W. Menzies, Surveyor to the Council, Englefield Green, Surrey:—

J. Mowlem & Co., Ltd. £685 0	S. Gibbons, Maidenhead†..£659 12 6
T. Free & Sons .. 668 16	

†Accepted subject to loan being granted by the Local Government Board.

COULSDON.—For Coulsdon Little Roke Council School, for Surrey Education Committee. Messrs. A. W. Jarvis, A.R.I.B.A., and F. A. Richards, M.A., Architects to the Surrey Education Committee, 36, Victoria-street, London, S.W.:—

Cummins & Son	£8,050 0 0	G. Kemp	£7,189
Mitchell Bros.	7,653 0 0	M. Wells & Co., Ltd.	7,100
J. & M. Patrick	7,400 0 0	D. Waller	7,074
T. J. Hawkins & Co.	7,213 11 5	W. Smith & Sons	6,857
		D. Stewart & Sons*	6,642

DARTFORD.—For cleaning and painting works at Darenth Asylum, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

Wontner & Co., Ltd.	£3,175 0 0		
W. J. Simms & Sons	2,900 0 0		
W. J. Negus	2,417 5 1		
E. Proctor & Son	2,257 0 0		
J. S. Fenn	2,224 10 0		
J. Ellingham & Sons	2,057 18 1		
M. McCarthy	1,833 0 0		
W. Hussey	1,737 0 0		
L. Kazak, 3 and 4, Station-road, Belvedere, S.E.*	1,685 4 0		

DARTFORD.—For alterations to cast-iron steam and condense mains at Joyce Green (Small-pox) Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

E. Le Bas & Co.	£210 0	W. G. Cannon & Sons, Ltd.	£98 10
G. & E. Bradley	203 0	T. Potter & Sons, Ltd.	81 0
Seagers, Ltd.	145 0	J. & F. May, 33, Whetstone-park, Lincoln's Inn Fields, W.C.*	77 10
W. J. Fraser & Co., Ltd.	109 0		
J. Wilson & Co.	108 10		
Fairbrother & Co.	108 0		
Cannon & Hefford	105 0		

DARTFORD.—For erecting industrial workshops at Darenth Asylum, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief. Quantities by Messrs. J. Woldram & Son, 12, Buckingham-street, W.C.:—

J. Ellingham & Sons	£4,167 11 7	Pasterfield & English	£3,597 0 0
W. Dennison	3,999 0 0	S. E. Moss	3,496 0 0
Thomas & Edge	3,836 0 0	Abbot & Charlton	3,425 4 5
Friday & Ling	3,833 18 10	F. & G. Foster	3,364 0 0
G. H. Gunning & Sons	3,719 3 6	H. Line	3,292 0 0
W. Gibson & Co.	3,684 0 0	W. F. Blay	3,292 0 0
J. Lonsdale	3,675 0 0	W. J. Negus	3,242 8 10
T. Knight	3,641 0 0	Hyde & Co., Norwood Junction, S.E.*	2,970 0 0
S. Wiles & Sons	3,614 10 10		

DENBY DALE.—For drainage works, for the Denby and Cumberworth Urban District Council. Messrs. C. H. Marriott, Son, & Shaw, engineers, Church-street-chambers, Dewsbury:—

H. Smith	£4,447 4 4	Keetch & Wainer	£2 511 18 0
W. Snape & Sons	3,883 10 7	M. Arundel	2,324 9 7
Higgins & Pashley	3,075 10 0	A. Graham & Sons	2,320 0 0
J. Keighley	3,000 0 0	R. Naylor	2,284 16 8
Graham & Sons	2,898 16 1	F. Mitchell & Son	2,283 1 5
A. J. Cottle	2,850 2 8	W. Doleman	2,218 11 11
P. Rhodes	2,833 17 9	Sidebottom & Brown	2,175 5 8
R. Turner	2,787 10 4	Edmundson & Wyatt	2,126 15 0
J. H. MacDonald	2,777 6 6	Allott, Cook, & Haywood, Cumberworth*	2,018 5 6
Wilson Bros.	2,699 9 4		
J. Hollingworth & Sons	2,681 14 6		
S. Coops	2,670 0 0		
H. H. Barry	2,545 1 5		

EASTBOURNE.—For elementary school, cookery school, etc., East-street, for the Town Council. Mr. F. G. Cooke, A.M.I.C.E., 2, Hyde-gardens, Eastbourne. Quantities by Messrs. Mitchell & Ford, 7, Gildredge-road, Eastbourne:—

Feast & Jones	£6,040 0	J. White	£5,231 0
E. J. Bowles	5,989 0	E. Cornwell & Sons	5,100 0
M. Hookhan	5,597 0	W. Brown & Son	5,039 0
Miller & Selmes	5,448 0	C. P. Dennis & Co.	4,900 0
Jarman, Daws, & Co.	5,359 0	J. Martin, Eastbourne‡	4,861 0
A. W. King & Son	5,277 10		
R. Cook & Sons	5,240 0		

‡ Recommended for acceptance.
[Architect's estimate, £5,065.]

EAST HAM.—For electric light installation for the new Central Carnegie Library Buildings, High-street South, for the Corporation. Mr. W. C. Ullman, electrical engineer, Nelson-street, East Ham:—

W. R. Reynolds, 117, Queen Victoria-street, E.C., and 75, Wanstead Park-avenue, Manor Park* £271 12 6

EVESHAM.—For sewerage works at Harvington, for the Rural District Council. Mr. H. S. Harvey, Surveyor, Evesham:—

H. Law	£170 0	F. A. White	£149 18
J. A. Meredith	165 0	T. Vale & Sons, Ltd., Stourport*	147 10
W. Davis	158 0		
J. E. White	152 10		

FRONCYSYLLTE.—For erecting two houses and a shop, for Mr. Ellis D. Jones. Mr. E. Vaughan-Edmunds, architect and surveyor, Llangollen:—

D. Roberts	£915 17	I. Jenkins	£795 10
W. F. Humphreys	895 0	Davies & Sons	795 0
J. I. Jones	840 0	J. Carden	705 0
W. Jones & Sons	819 0	Jones & Jones. Llangollen*	700 0

HARPLEY (Norfolk).—For erecting schools, etc. Mr. Louis F. Eagleton, architect and surveyor, King-street, King's Lynn. Quantities by architect:—

S. Powell	£1,104 0 0	J. Medwell	£840 0
J. J. Bone	1,075 19 0	R. Shanks	834 0
C. Tuthill	1,045 0 0	Read & Wildbur	831 0
Spaulding & Hampden	998 0 0	Dye & Allen	831 0
J. Parren & Son	980 0 0	G. W. Heath	795 5
A. F. Foreman	944 0 0	H. W. Barnes & Co.	798 10
W. F. Smith	937 17 6	J. W. Warne	793 10
F. Southgate	933 15 0	G. Riches, Dersingham*	777 10
R. Whitby	857 0 0		

HEREFORD.—For re-erecting the "Red Lion Inn," Eign-street, for the Stroud Brewery Company, Ltd. Mr. E. P. Dromgole, architect and surveyor, Stroud. Quantities by architect:—

Freeman & Jones	£2,787	W. Powell	£2,473 0
Orchard & Peer	2,700	E. W. Wilks	2,450 0
Beaven & Hodges	2,674	E. Beavis	2,438 0
E. Walters & Son	2,664	W. Bowers & Co.	2,412 0
W. P. Lewis & Co.	2,625	P. Ford & Son, Stroud*	2,360 10
W. F. Drew	2,599		
N. Baxter & Sons	2,518		

JARROW.—For new street works, for the Urban Sanitary Authority. Mr. J. Petree, Borough Surveyor, Town Hall, Jarrow:—

T. Callaghan .. £136 8 1 | D. Glen £134 18 4

[Surveyor's estimate, £142 4s.]

KEIGHLEY.—For erecting a workshop in Goulbourne-street, for Keighley Ironworks Society, Ltd. Mr. W. Thomson, architect. Quantities by architect:—

Mason.

J. Whorton	£434 0 0	F. Waterhouse	£395 0 0
J. Totty	432 0 0	R. Tomlinson	393 0 0
T. E. Sugden	425 0 0	J. Waterhouse	392 0 0
Hardy & Firth	410 5 6	E. Turner, Keighley*	383 0 0
Smith Sharp	404 16 2		

Joiner.

Wood & Thornton	£439 17	S. Foster	£400 0
J. Whorton	432 0	J. Hartley	397 0
M. Taylor	423 11	J. Wilkinson	382 15
A. Fortune	411 2	J. Driver & Sons	379 0

KIRKSTALL.—For alterations to shop and premises, Commercial-road. Mr. R. Fielding Farrar, A.R.I.B.A., 10, Park-row, Leeds:—

Eddison Bros., Kirkstall £122

[Lowest of eighteen tenders received.]

LONDON.—For new steam main to disinfector and destructor at the S.E. Fever Hospital, New Cross, S.E., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

Foster Bros., Ltd.	£448 0	J. & F. May	£93 10
Seagers, Ltd.	190 0	Wenham & Waters, Ltd.	93 0
W. G. Cannon & Sons, Ltd.	129 10	G. & E. Bradley	93 0
W. J. Fraser & Co., Ltd.	120 0	Fairbrother & Co.	87 10
R. Dawson & Co., Ltd.	105 0	Cannon & Hefford	81 0
J. Wilson & Co.	104 10	T. Potter & Sons, Ltd., Putney Bridge Ironworks, Fulham, S.W.*	62 0
E. Le Bas & Co.	96 15		

LONDON.—For road-making, kerbing, paving, etc., of Trehurst-street, for Hackney Borough Council. Mr. Norman Scorgie, Borough Engineer and Surveyor, Town Hall, Hackney:—

W. Manders	£447 6 10½	E. T. Bloomfield	£425 19 8
T. Adams	447 3 7	G. Porter, 2, Arthur-street, Well-street, Hackney, N.E.*	415 14 3
W. Griffiths & Co., Ltd.	440 8 2		

LONDON.—For painting, etc., of external wood and iron work at Central offices, for the Metropolitan Water Board:—

J. Simpson & Son	£250	Campbell, Smith, & Co.	£145
Macey & Co.	192	G. Trollope & Sons	140
Hampton & Sons	172	Clarke & Mannooch*	122

LONDON.—For the erection of a new police section-house at Lea Bridge-road. Mr. J. Dixon Butler, F.R.I.B.A., Surveyor to the Metropolitan Police, New Scotland-yard, S.W. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing Cross-chambers, Duke-street, Adelphi:—

F. G. Minter	£4,483 0	F. & H. F. Higgs	£3,756 0
Willmott & Sons	3,931 0	Newby Bros.	3,745 9
Harris & Wardrop	3,900 0	Mowlem & Co., Ltd.	3,726 0
W. Eyre	3,896 0	Lathey Bros.	3,719 0
Lascelles & Co.	3,840 0	Godson & Son	3,482 0
Holloway Bros.	3,832 0	Chessum & Son	3,367 0
Grover & Son	3,783 0		

LONDON.—For reconstructing river wall at the "Gun Tavern" Wharf, Blackwall, London, E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

G. C. Webb & Co.* £218 17 6

LONDON.—For repairs and decorations to premises, Albion-road, Stoke Newington, London, N. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

T. W. Kingsland	£534 18 0	J. T. Robey	£430 0 0
Sheffield Bros.	485 0 0	A. W. Derby*	347 0 0
T. J. Dartnall	435 0 0	Chapman & Co.	331 17 6

LONDON.—For the erection of small stable at the rear of shop premises, Lower Clapton, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

T. W. Kingsland	£152 16	Rowley Bros.*	£125 0
Sheffield Bros.	147 0		

LONDON.—For ventilating fans at the Central School of Arts and Crafts and London Day Training College, Holborn, for the London County Council:—

Sturtevant Engineering Co., Ltd.	£1,383 17 0
Wilson Wolf Engineering Co., Ltd.	1,313 0 0
C. Pullen	1,245 0 0
Electrical Co., Ltd.	1,185 15 0
A. W. Penrose & Co., Ltd.	1,110 0 0
Standard Engineering Co., Ltd.,	1,033 1 6
Electric & Ordnance Accessories Co., Ltd.	1,019 0 0
Ashwell & Nesbit, Ltd.	938 10 0
Davidson & Co., Ltd.	841 0 0
Musgrave & Co., Ltd.	795 0 0
Matthews & Yates, Ltd.	740 0 0
Alldays & Onions Pneumatic Engineering Co., Ltd., Great Western Works, Birmingham*	693 0 0

[The estimate of the chief engineer, comparable with the tender, is 705*l.*]

LONDON.—For electric light installation, Tooting fire station, for the London County Council:—

J. O. Grant & Taylor	£195 0	Smeeton & Page	170 0
Durrell & Co.	186 0	O. Clark & Co.	166 5
F. A. Glover & Co.	178 0	W. J. Fryer & Co., Bravington-road, Paddington, W.*	140 0
J. Barker & Co., Ltd.	175 0		
J. E. Spagnoletti & Co.	170 0		

LONDON.—For the manufacture and erection of six of the fuel economisers required for use at the second portion of the Greenwich generating-station, for the London County Council:—

Goodbrand & Co.	£4,050 0 0
Clay Cross Co.	4,033 0 0
Roberts Bros.	3,967 10 0
A. Lowcock, Ltd.	3,910 0 0
E. Green & Son, Ltd., Wakefield*	3,805 14 0

[E. Green & Son, Ltd., to sublet to the undermentioned firms (or to such other persons or firms as may be approved by the engineer under the contract) the following portions of the work namely, (i.), to the British Thomson-Houston Company, Ltd., the supply of the induction motors; (ii.) to Llewellins Machine Company, the supply of the worm gears; (iii) to the British Westinghouse Electric and Manufacturing Company, Ltd., the supply of the starting switchboards; and (iv.) to Mr. R. Wagner, the supply of the pyrometers.]

LONDON.—For the supply of motor tenders for the Fire Brigade, for the London County Council:—

—	Price per motor tender (including provision money of £100 in each case) if there were ordered—					
	1 Tender.	2 Tenders.	3 Tenders.	4 Tenders.	5 Tenders.	6 Tenders.
	£	£	£	£	£	£
J. Morris & Sons	1,190	1,165	1,140	1,115	1,090	1,065
H. Simonis & Co.	975	960	950	950	950	950
Lloyd & Plaister	958	948	945	945	945	945
Merryweather & Sons, Ltd, Greenwich-road, S.E.*	918	910	905	900	895	890

LONDON.—For road works, for Chiswick Urban District Council:—

—	Making-up part of Abinger-road.	Abinger-road Surface Water Sewer.	Pleydell-avenue Surface Water Sewer.	Grantham-road Surface Water Sewer.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
P. A. Amy	—	—	180 0 0	—
J. Ball	440 0 0	56 0 0	126 0 0	212 0 0
E. & E. Isles	468 0 0	50 6 0	115 16 0	268 4 0
J. Mears	496 0 0	68 0 0	169 0 0	289 0 0
J. Mowlem & Co., Ltd.	457 0 0	46 0 0	—	—
Neave & Nairn	550 0 0	51 10 0	146 0 0	375 0 0
E. Parry & Co.	451 0 0	60 0 0	136 0 0	220 0 0
W. E. Rhodes	435 0 0	52 0 0	121 0 0	219 0 0
W. H. Wheeler	428 0 0	59 0 0	152 0 0	229 0 0
Wilson, Border, & Co.	510 0 0	50 0 0	99 10 0	177 0 0
G. Wimpey & Co.	453 0 0	55 0 0	125 0 0	220 0 0
H. Woodham & Sons	529 0 0	83 0 0	167 0 0	313 0 0
T. Wood & Sons	514 13 10	56 3 3	147 13 0	256 16 0

LONDON.—For improvements, Cayley-street, Limehouse, for the London County Council:—

F. & F. J. Wood	£15,578 0 0
Treasure & Son	14,073 0 0
McCormick & Sons	13,651 0 0
Perry & Co.	13,578 0 0
J. Greenwood, Ltd.	13,498 0 0
E. Lawrance & Sons	13,442 0 0
Kirk & Randall	13,337 0 0
J. & C. Bowyer	13,177 0 0
Patman & Fotheringham, Ltd.	13,123 0 0
J. & M. Patrick	13,029 0 0
F. & E. Davey, Ltd.	12,427 0 0
C. Wall, Ltd., 4, Lloyd's-avenue	12,210 8 11
J. Chessum & Sons	11,270 0 0

[The estimate of the Architect (Education) comparable with the tenders, is £13,760.]

LONDON.—For the erection of cottages on section B, White Hart-lane estate, for the London County Council:—

T. J. Hawkins & Co.	£36,749	G. H. Carter	£24,136
J. Stewart	29,392	G. D. Barns	23,985
C. Wall, Ltd.	29,058	G. E. Pulford, Wood-green*	22,200
F. J. Coxhead	27,542		
Rowley Bros.	24,522		

[The erection of 60 cottages on the first part of section B has been carried out by Mr. Pulford, who is now engaged in building 60 cottages on the Tower-gardens section of the estate. The portion of section B which it is now proposed to develop comprises nearly four acres. 282 cottages with accommodation for 2,250 persons have already been completed on the estate, and 41 more, designed to accommodate 290 persons, are in course of erection.]

LONDON.—For the erection of Parish Hall, St. Andrew's, Earlsfield, S.W., for the Rev. D. Tudor Craig. Mr. Fredk. E. Halford, architect, London. Quantities by Mr. J. A. Thompson:—

G. Trollope & Sons		W. H. Lordon & Son	£3,278
& Colls & Sons	£3,767	C. Ansell	3,200
Holland & Harman	3,492	J. Garrett & Son	3,200
Munday & Sons	3,396	J. & M. Patrick	3,179
J. S. Carmichael	3,380	Holloway Bros.	3,170
S. E. Nightingale	3,347	W. Johnson & Co.*	3,098
Prestige & Co.	3,297		

MACCLESFIELD.—For erecting store and fitters' shop at the gas-works, and boundary wall to Gasholder-yard for the Gas Committee. Mr. W. Newbigging, gas engineer, Macclesfield:—

S. Bull, Macclesfield £464 16 8

MACDUFF.—For the erection of "Dun-Alastair," Macduff, Banffshire, for Mr. Alexander Robertson. Mr. F. D. Robertson, architect, Keith (exclusive of grates, mantels, tiles, enclosing walls, gates, and railings, etc.):—

Mason: R. Morrison, Macduff	£464 0
Carpenter and Joiner: A. Stronach, Huntly	337 0
Slater: W. Scott, Macduff	59 5
Plasterer: J. Clark, Turriff	64 0
Plumber: A. Strachan, Banff	100 14
Painter and Glazier: F. Watt, Banff	38 10

MARGATE.—For road works, rear of Byron-road, Westcliffe-road (part of) and Walpole-road, for the Town Council. Mr. E. A. Borg, Borough Surveyor, Town Hall, Margate:—

	Road in rear Byron-road.	Westcliffe-road (part).	Walpole-road.
W. Wilson, Penhurst-road, Ramsgate	£180	£100	£201 10

MARGATE.—For an iron and steel staircase from the top of the cliffs at the oval to the landing-stage, for the Corporation. Mr. E. A. Borg, C.E., Borough Surveyor, Town Hall, Margate:—

Norton Bros., Leyton, Essex £457

MENAI BRIDGE.—For the erection of three cottages, Beach-road, for Mr. I. G. Bacon. Mr. R. G. Thomas, architect:—

I. Evans, Menai Bridge* £940

MENAI BRIDGE.—For the erection of a new entrance lodge and gateway, etc., at "Bodlondeb" Mansion for Mr. H. R. Davies, J.P. Mr. R. G. Thomas, architect:—

D. Owen	£538 0	W. Humphreys	£431 5
I. Evans	486 0	E. Parry, Menai Bridge*	415 0

NORWICH.—For addition to Foulsham School for the Norfolk Education Committee. Messrs. Morgan & Buckingham, architects and surveyors, 1, Upper King-street, Norwich:—

J. Evans	£381 0	T. H. Blyth, Foulsham*	£288 10
Hannaut	317 0	Podd & Fisher	275 0

REIGATE.—For tar-washing certain sections of the roads, for the Town Council. Mr. F. T. Clayton, Borough Surveyor, Municipal Buildings, Reigate:—

R. Johnston & Co., 45, Parliament-street, S.W.—per yard super, 1¼d. for one coat; 1¾d. for two coats.

[To be carried out by the Johnston-Lassally machine.]

ST. ALBANS.—For new school at Fleetville, St. Albans, for Hertfordshire County Council. Mr. Urban A. Smith, Architect:—

Goodchild & Jeffery	£6,673 0 0
Stephens, Bastow, & Co.	6,569 5 8
McCormick & Sons	5,890 10 0
Lawrence & Son	5,844 0 0
Miskin & Son	5,668 0 0
Hacksley Brothers	5,667 0 0
F. and G. Foster	5,587 0 0
Brown and Son	5,492 0 0
Cook & Son	5,410 0 0
J. McKay	5,358 0 0
Henson & Son	5,350 13 9
Vail & Shore, St. Albans*	5,311 18 10
Edwards & Medway	4,964 0 9

[Architect's estimate for £5,500.]

STRATFORD.—For rebuilding the "Sea Serpent" beer house, High-street, for Messrs. Mann, Crossman, & Paulin, Ltd. Messrs. Waring & Nicholson, architects, 38, Parliament-street, S.W. Quantities supplied by Messrs. Robins, Gray, & Co., 55 and 56, Chancery-lane:—

G. Brittain	£2,569 0	Holliday & Greenwood, Ltd.	£2,279 0
C. & W. Crampton	2,504 16	Courtney & Fairbairn	2,277 0
W. Smith & Son	2,469 0	Todd & Newman	2,263 0
J. & H. Cocks, Ltd.	2,377 0	W. Gladding & Co.*	2,199 0
Harris & Wardrop	2,345 0		

TOTTENHAM.—For cleaning and painting works at the North-Eastern Fever Hospital, St. Anne's-road, N., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

J. F. Penn	£1,156 14 6	F. W. Hardy	£590
E. Proctor & Son	820 0 0	Sabey & Son, Ltd., 3, St. Peter's-street, Islington*	520
W. J. Negus	777 0 0		
J. S. Fenn	698 0 0		
Townsends	670 0 0		

WILLINGTON QUAY.—For street works, for the Urban District Council. Mr. J. Fleming Davidson, Surveyor, Council Chambers, Willington Quay:—

W. T. Wallace	£2,597 17 4	G. A. Reevell	£2,401 12 6
J. Coxon & Sons	2,576 3 3	M. McKinnon	2,367 4 8
J. Hollings	2,458 9 5	E. Edgar	2,205 17 7
J. Musgrove	2,446 4 9	G. E. Simpson, Newcastle*	2,187 14 6
R. McLaven	2,435 16 0		

The BATH STONE FIRMS, Ltd., BATH.
For all the Proved Kinds of
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
LITHOGRAPHERS,
Employ a large and efficient Staff especially for Bills of Quantities, &c.
4 & 5, East Harding-st., Fetter-lane, E.C.

QUANTITIES, etc., LITHOGRAPHED accurately and with despatch. [Telephone No. Westminster.
METCHIM & SON {8, PRINCES STREET, S.W., and 32, CLEMENT'S LANE, E.C.
"QUANTITY SURVEYORS' DIARY & TABLES," For 1907, price 6d., post 7d. In leather, 1/-.

GRICE & CO., STONE MERCHANTS.
ADDISON WHARF, 191, Warwick Rd., KENSINGTON,
FOR ALL THE BEST
Building & Monumental Stone
A LARGE STOCK OF BEST
CAEN Stone { For HOME TRADE and EXPORT,
in Block, Slab, and Scantling.

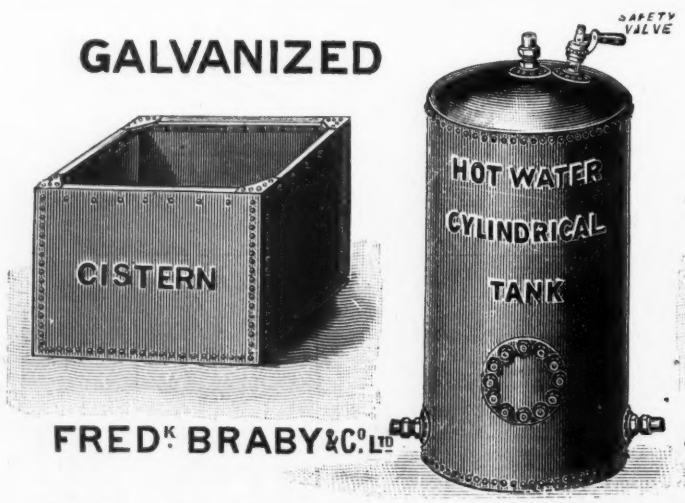
J. J. ETRIDGE, Jr.
SLATE MERCHANT,
SLATER & TILER.
Penrhyn-Bangor,
Oakeley-Portmadoc.
BEST WORK ONLY.
Red Sandfaced Nibbed Roofing Tiles always in Stock.
Applications for Prices, etc., to
BETHNAL GREEN SLATE WORKS,
Bethnal Green, London, E.

ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
Special attention is given to the above by
THE
French Asphalte Co.
CONTRACTORS TO
H.M. Office of Works, The School Board for London, &c.
For estimates, quotations, and all information apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

WE ARE THE ORIGINAL INTRODUCERS OF THE HOT-WATER CYLINDRICAL TANKS.

Telegrams: "Courteous, London."
Telephone: 457 North (three lines.)

GALVANIZED



IRON

FRED^K BRABY & C^O LTD
FITZROY WORKS
352 TO 364 EUSTON R^D
LONDON,

ILLUSTRATED SHEET, SHOWING APPLICATION OF OUR HOT-WATER CYLINDRICAL TANKS, SENT ON REQUEST.

AND AT DEPTFORD, LIVERPOOL, BRISTOL, GLASGOW, FALKIRK, AND BELFAST.

907.

., BATH.

E.

roofing, and

e.
e.
e.

o., Limited
Trask & Son,

nerset.
Villiams,

tallic Lava
Office, 42,
t materials
warehouse
and milk-
d terraces.
Bridge Co.

pecially for

ane, E.C.

RAPHED
elephone No.
Westminster.
REET, S.W., and
S LANE, E.C.
& TABLES,"
ther, 1/-.

ONE . .
RCHANTS.

ENSINGTON,

l Stone

E TRADE and
XPORT,
G.

p Courses.
ther Floors.

by

lte Co.

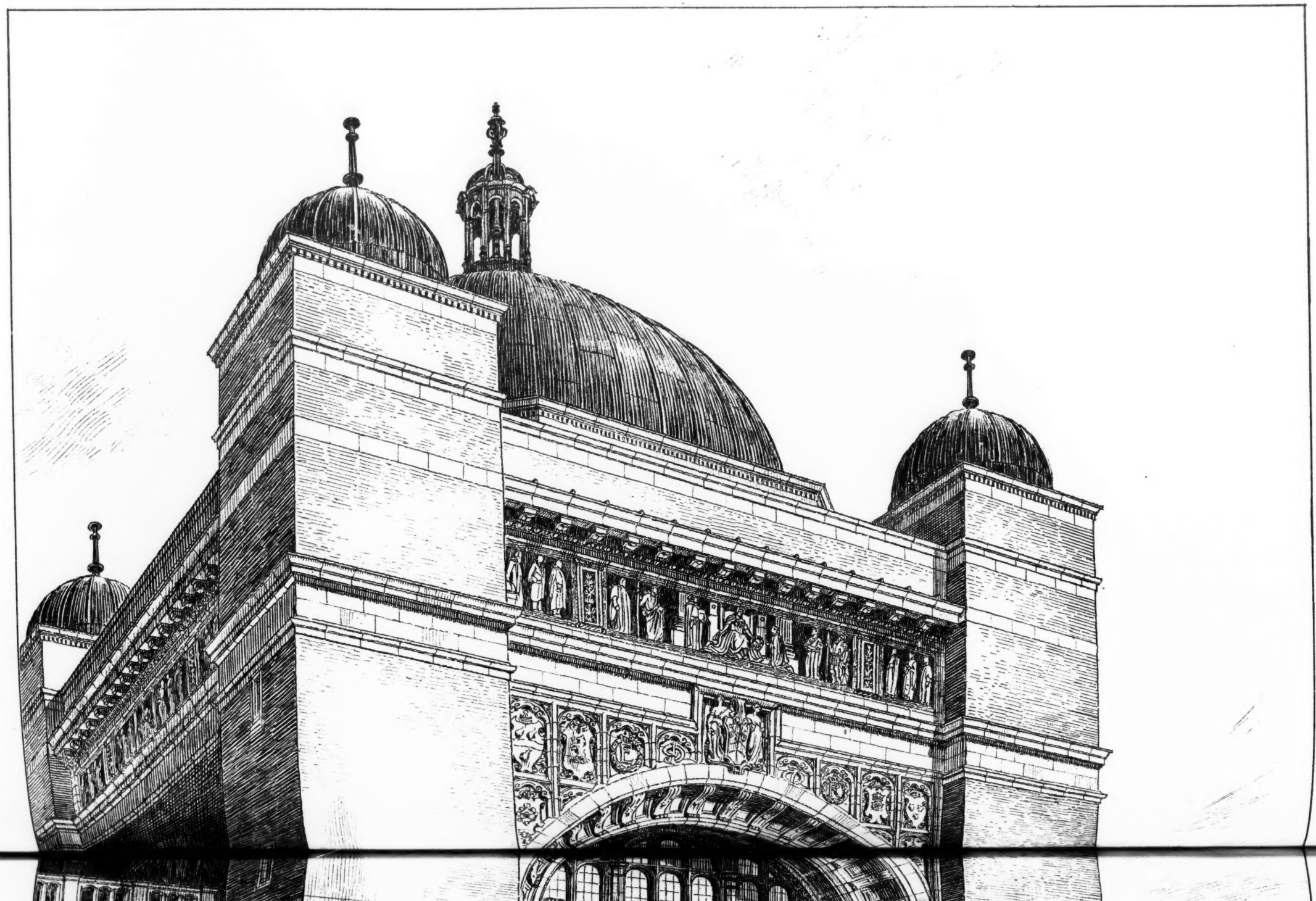
for London, &c.

nformation
pany.

Y HILL,
C.

STRATED
HEET,
OWING
ICATION
OUR
-WATER
NDRICAL
ANKS,
NT ON
QUEST.

ST.



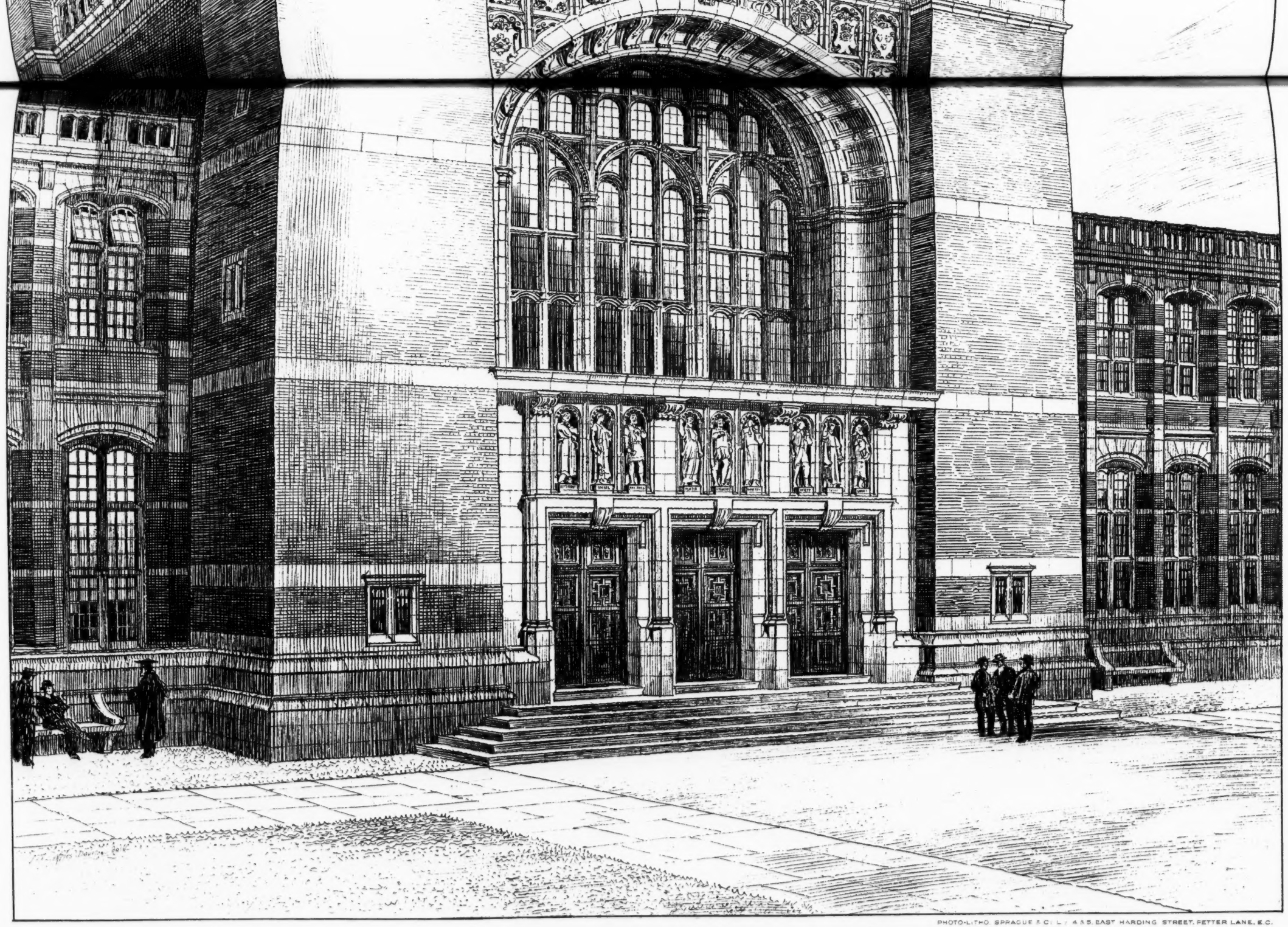
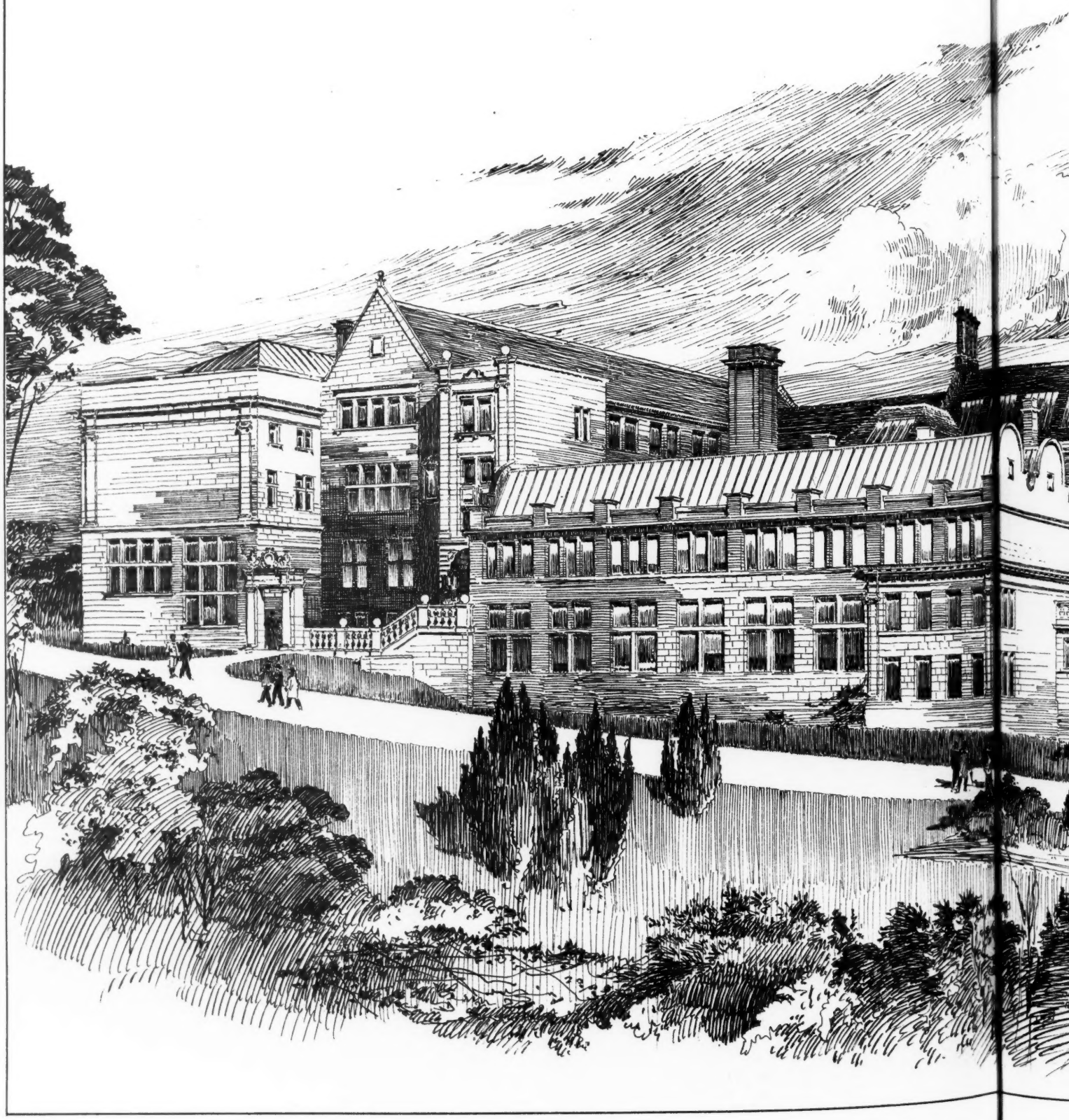
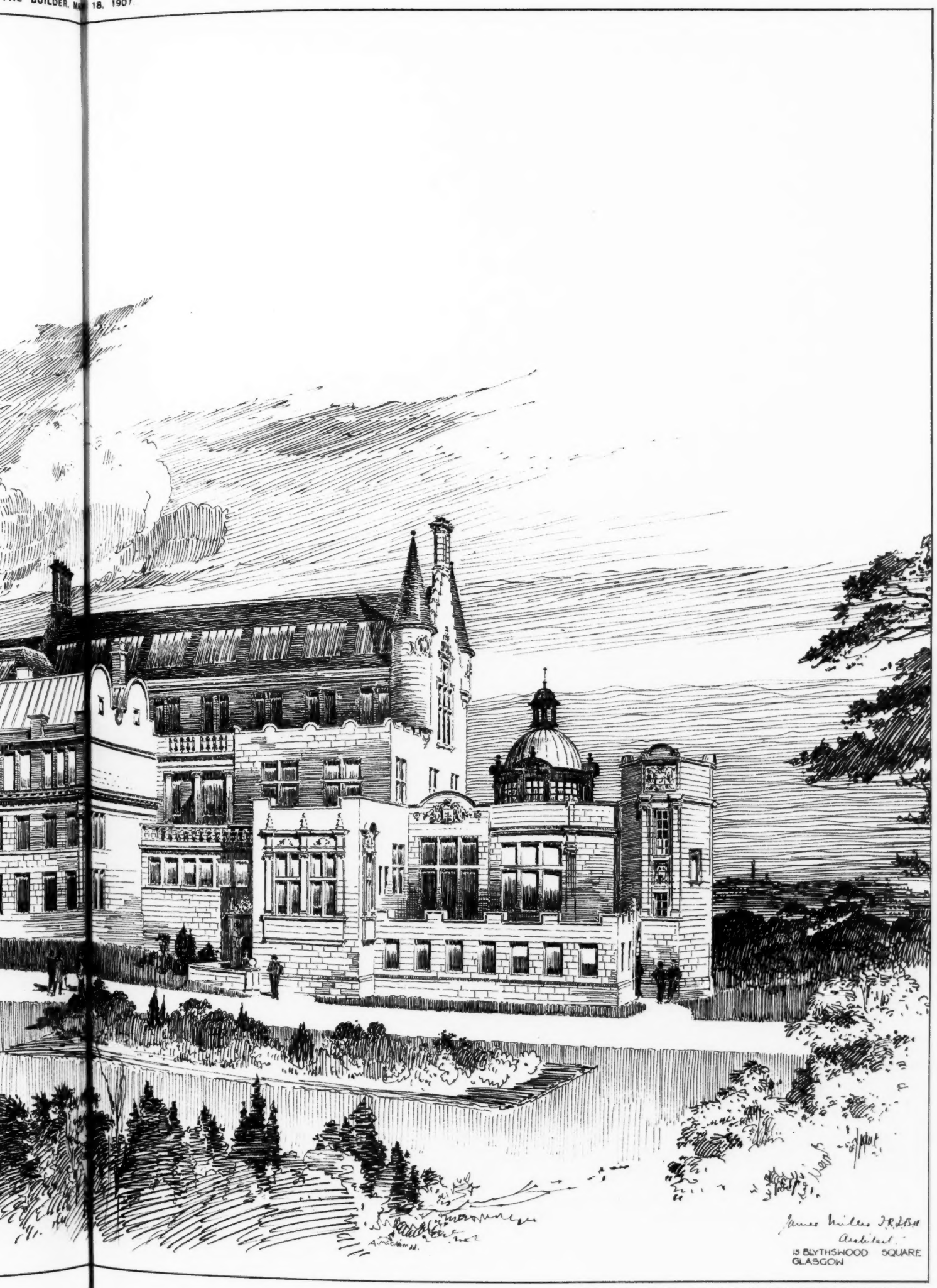


PHOTO-LITHO. SPRAGUE & C°. L.D. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

PRINCIPAL ENTRANCE: BIRMINGHAM UNIVERSITY.—Sir Aston Webb, R.A., Architect.

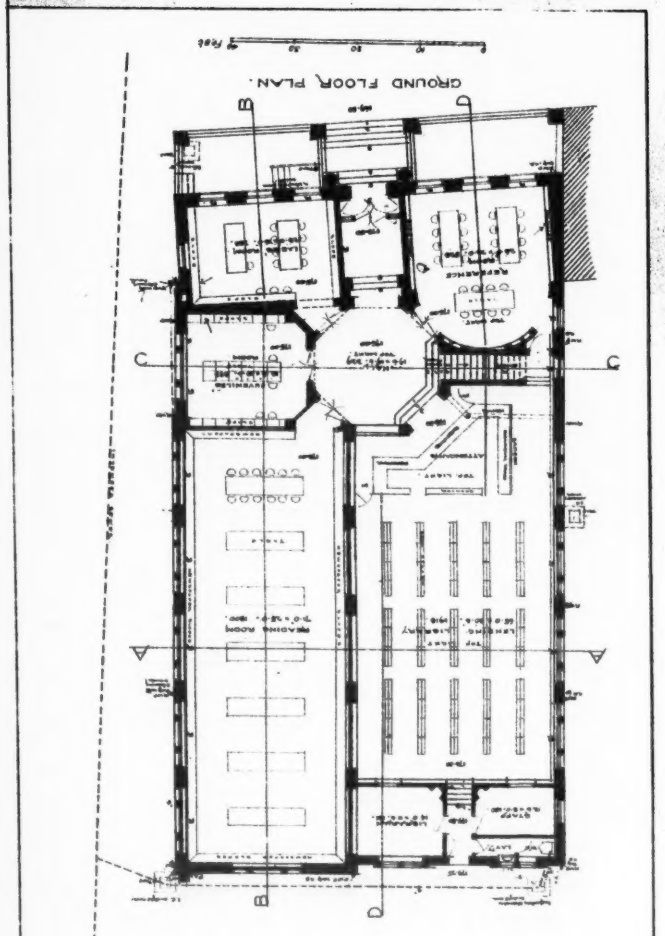
GLASGOW UNIVERSITY
NEW MEDICAL SCHOOL BUILDING





James Miller F.R.I.B.A.
Architect.
15 BLYTHSWOOD SQUARE
GLASGOW

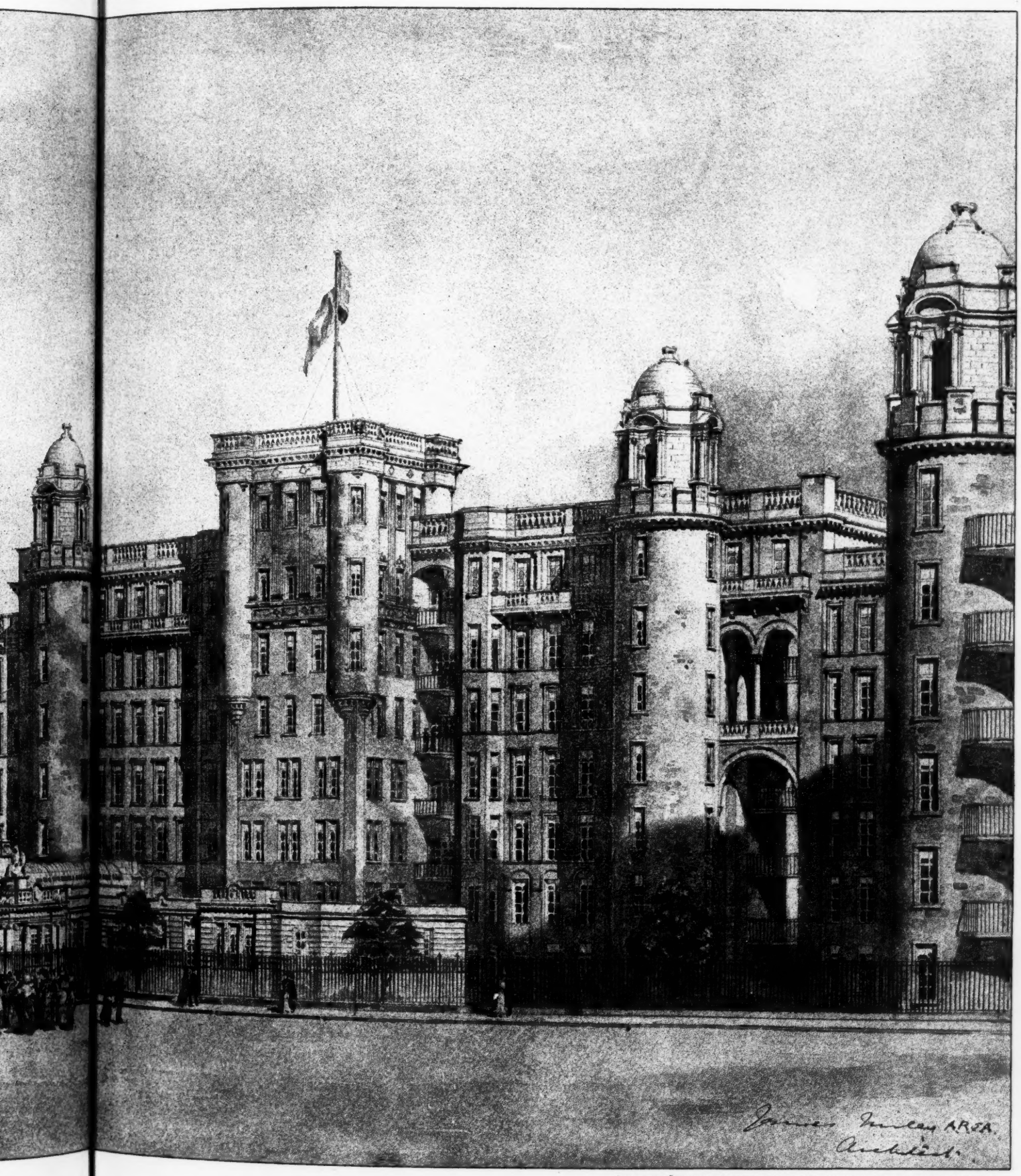
PHOTO-LITHO. SPRAGUE & Co. L.d 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.


GROUND FLOOR PLAN.

"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

SELECTED DESIGN FOR PUBLIC LIBRARY, KENDAL.—Mr. T. F. Pennington, A.R.I.B.A., Architect.

NEW ROYAL INFIRMARY, GLASGOW: VIEW OF QUADRANGLE FROM SOUTH-



"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

UADRANGLE FROM SOUTH-WEST.—MR. JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT